# Guide to Better Living

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A Guide to Better Living

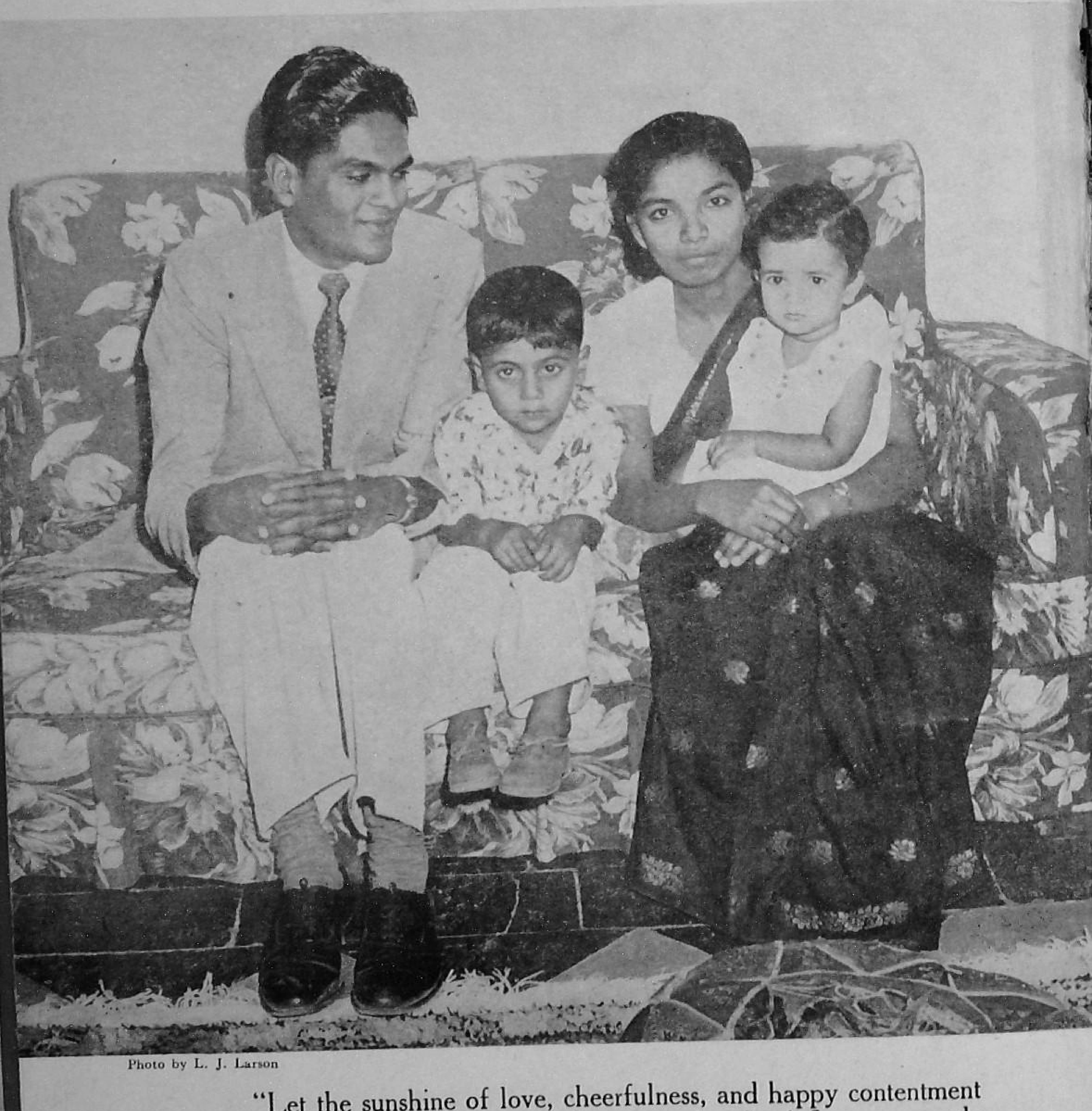

Photo by L. J. Larson

"Let the sunshine of love, cheerfulness, and happy contentment enter your own hearts, and let its sweet, cheering influence pervade your home."—ELLEN GOULD WHITE.

# A Guide to Better Living

Ways to Health and Happiness

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*Dedicated to men and women everywhere who truly seek the better way.*

PROSPERITY

# Introduction

THE prosperity of our country is dependent upon a healthy, enlightened, liberty-loving, temperate people. A GUIDE TO BETTER LIVING is designed to bring to the reader salient principles bearing on all these points, carefully fused together.

Various aspects of health are discussed by recognized authorities in their respective fields. It is hoped that the vital information that they have imparted will prove to be of outstanding value to the reader in the attainment of a larger measure of health.

The publishers feel that temperance is essential to the objective of good health. An endeavour has been made, therefore, to present positive information and counsel in the hope that it will help to influence the intemperate to better living. True temperance in all things will make our people and their homes, healthier, and happier and will lead our nation to prosperity.

We would be remiss in pointing out ways to health and happiness if we failed to give recognition to mental and spiritual health, and accordingly a portion of this book has been devoted to these subjects also.

Another great source of happiness is liberty. We have therefore endeavoured to clarify a few of the principles which when applied have made men and nations great.

The publishers of A GUIDE TO BETTER LIVING earnestly hope that the reader will find in this book the way to real health and happiness.

—THE PUBLISHERS.

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*"Well-living consists in many things besides the satisfaction of appetite. . . ."—Robert McCarrison*

PART I

# A STRONG BODY


| | |
|---|---|
| How to Obtain a Balanced Diet | Adapted |
| Diet and Diabetes | Joel Rentfro, M.D. |
| What Shall We Eat? | Adapted |
| How to Treat Heart Disease | S. A. Kotz, M.D. |
| What You Ought to Know about Cancer | Joseph T. Mossberger, M.D. |
| Some Reasons for Bad Teeth | Russell Mitchell, D.D.S., F.A.C.S. |
| How to Avoid Constipation | Arthur N. Donaldson, M.D. |
| How to Avoid Kidney Trouble | Roger W. Barnes, M.D. |
| Malaria | H. C. Menkel, M.D. |
| Important Facts about Your Eyes | Robert J. Beitel, Ph.D. |
| How to Avoid Infantile Paralysis | G. K. Abbott, M.D., F.A.C.S. |
| Tuberculosis—Ways to Prevent It | J. DeWitt Fox, M.D. |

R. Krishnan

# How to Obtain a Balanced Diet

ONE of the major responsibilities of any efficient government is to guard and promote the health of the people which it represents. Regarding diseases produced by faulty food, Sir Robert McCarrison has written:

"I emphasize these minor manifestations of malnutrition because they represent the beginnings of disease, and their recognition is, to my way of thinking, vastly more important than that of the wreckages of health, which even the man in the street can see, though his name for them may be less sonorous than our own.

"Next in importance to the *physical inefficiency* and the *minor manifestations* of *ill-health* induced by faulty food come those gross states of morbidity that are due to some specific food fault; the list of these increases year by year. I shall do no more than mention them, leaving you to link each to its own food fault. They are: keratomalacia, night blindness, dental caries, polyneuritis, beriberi, pellagra, scurvy, rickets, osteoporosis or slow healing of fractures, sterility, stone-in-the-bladder, anæmias, some types of goitre, alimentary dystrophy, gastric atony and dilatation, diarrhœa, constipation, intestinal stasis, colitis, unhealthy skin, disordered action of the adrenal glands, and vesical irritability.

"The list of infectious diseases, to which animals and man are rendered highly susceptible by faulty food, is comprehensive enough including as it does, respiratory disease, gastro-intestinal disease, heart disease, throat disease, kidney disease and skin disease, and infections by such diverse organisms as protozoa, bacilli and invisible viruses. There is good reason, therefore, for the assumption that such death-dealing diseases as tuberculosis, leprosy, cholera, dysentery, plague, and malaria have often in this country a malnutritional element in their genesis and course. Yet

in attempting to combat them, or to ascertain the conditions favourable to their spread, how often do we remember the prime rule of medicine that 'the wrong kind of food is the most important single factor in the promotion of disease'?"

These same masterly observations have revealed that a few rational changes in the diet practices of India, would convert the present prime cause of disease into "the most important single factor in promoting health," resistance to disease, and physical stature.

The expression "Balanced Diet" does not mean that different foods are to be actually weighed daily and used in strict proportion. That would involve a lot of trouble and expense and would be impracticable. It only means that the diet or, more correctly, our daily food, should contain the different components of food in a certain proportion. Our body is able to tolerate occasional variation in diet, but a long continued excess of deficiency of one or more components will impair the growth of the young and is frequently responsible for such common complaints as fatigue after slight exertion, headache, a low grade anæmia, dyspepsia, intestinal disorders, unhealthy skin and an increased tendency to infectious diseases. If the defect be great it may lead to rickets, beriberi, severe anæmia, decayed teeth, gastro-intestinal diseases, diabetes, tuberculosis, etc.

It is well to remember that the food we eat should give us not only (1) sufficient heat and energy for the work our bodies have to do but it should be capable of (2) bringing about normal growth and repair of the daily wear and tear of tissues, thus ensuring their normal functioning efficiency. This double purpose is served by different components of food. Starches, sugars and fats generally serve the first purpose and are therefore called "fuel foods." Proteins, such as are found in milk, eggs, pulses, etc., and food salts and vitamins serve the second purpose, and besides this, they increase the resistance of the body against diseases.

The emphasis laid on vitamins in the lay literature is somewhat misleading. All the components of food—proteins, fats, carbohydrates, mineral salts, vitamins and water—are equally important in their own way; and what we have to aim at is a diet that will contain them all, roughly within certain proportions. Such diets are called balanced, standard or properly constituted diets.

Starchy foods (grains and seeds), before the days of rationing, were comparatively cheap and plentiful, and therefore were used to excess in the diets of the poor. But such diets are often seriously lacking in the growth promoting and tissue repairing components of

Photo by U. S. I. S.

If the essential elements are added to water, plants will grow and mature the same as they do in the soil.

food. The diet of the well-to-do, on the other hand, generally shows an excess of proteins or fats and contains too little of certain food salts and vitamins. Its deficiency in salts and vitamins is due to the use by well-to-do people of highly refined or preserved foods and to the excessive consumption of proteins, fats and sugars, which disturbs the mineral and vitamin balance of a properly constituted diet. The delicate skin of grains and seeds contain their embryos from which the young plants spring and these are found to be particularly rich in important food salts and vitamins so essential to growth and repair of the human body. This skin is removed in polishing rice, in milling wheat and in other similar ways, so that these important substances are lost to us.

It will thus be seen that the diet of the well-to-do as well as that of the poor is likely to be defective, though in a different way, and therefore, the information supplied here will be found to be useful to both.

The value of milk, eggs, vegetables and fruits as balancers of diets, i. e., foods that will remove the defects of the common diets, has been emphasized by many writers on this subject. As, however, these foods are costly they are not

eaten in sufficient quantities by the poor. We, therefore, bring to the notice of the public the importance of soya beans, dried skim milk, bran or polishings of rice and oil seeds as less expensive and nutritious food-stuffs that might to a great extent serve as substitutes for more costly foods.

Sir Robert McCarrison has shown by analyzing the diets commonly eaten by various communities that they are not as a rule insufficient in quantity but are often defective in quality, and that growth and freedom from disease is directly correlated to the character of the diet.

The national diets of the Punjabi, the Sikh and the Pathan were found to be well-balanced, and these people showed ideal growth when the balance of their diets was maintained. The poor Madrasi or Bengali diet, on the other hand, was found to be very deficient in proteins, fats, vitamins and mineral salts; and it is particularly in Bengal and Madras that we find defective growth and the persistence of diseases of faulty nutrition such as anæmia, gastric ulcer, intestinal disorders, beriberi, tuberculosis, etc. Sir Robert confirmed these findings by feeding rats on these diets and noting their effects on these animals. It is being increasingly realized that malnutrition which is the bane of Southern Asia is due not so much to insufficient food as to food that is lacking in health-promoting properties.

## INVESTIGATION AND PLANNING OF DIETS

A concrete example will illustrate the methods to be followed in improving diets and drawing up satisfactory diet schedules. Let us suppose that the daily diet schedule of an institution, or of any family or group of people, works out as follows in amounts per consumption unit per day.

| | Oz. |
|---|---|
| Milled Rice | 15.0 |
| Milk | 1.0 |
| Pulses (dal arhar) | 1.0 |
| Brinjal | 1.0 |
| Lady's fingers | 0.5 |
| Amaranth | 0.25 |
| Gingelly oil | 0.50 |

This diet is an insufficient and "ill-balanced" diet amounting to 1750 calories—much less than the average daily requirements of an adult. Such a diet is typical of diets consumed by millions.

The following adjustments might be made in a defective diet of this nature in order to make it adequate and "well-balanced."

| | Oz. |
|---|---|
| Raw, milled rice | 10.0 |
| Cambu | 5.0 |

| | | |
|---|---|---|
| Milk | | 8.0 |
| Pulses (dal arhar 1 oz. black gram 2 oz.) | | 3.0 |
| NON-LEAFY VEGETABLES: | | Oz. |
| Brinjal | 2 oz. | |
| Lady's fingers | 1 " | 6.0 |
| Snake gourd | 1 " | |
| Cluster beans | 1 " | |
| Drumstick | 1 " | |
| LEAFY VEGETABLES: | | |
| Amaranth leaves | 2 " | 4.0 |
| Drumstick leaves | 1 " | |
| Spinach | 1 " | |
| GINGELLY OIL | | 2.0 |
| FRUITS: | | |
| Mangoes | 1 " | |
| Ripe plantains | 1 " | 2.0 |

This diet provides 2,600 calories corresponding to the average daily requirements of an adult. In the well-balanced diet millet is included in addition to rice. No change in principle would be involved by the substitution of whole wheat (atta) for millet in the above diet. The addition of a certain quantity of atta to diets based on rice is a desirable improvement. The additional milk in the balanced diet supplies proteins of high biological value, calcium and some vitamin A. The extra pulses increase total protein consumption and add calories. Intake of vegetables is greatly increased, with consequent all round improvement; the green leafy vegetables will be rich in vitamin A (carotene), a factor somewhat lacking in the remainder of the diet, and also in vitamin C. Two ounces of fats and oils will provide a considerable addition of calories. The inclusion of fruit ensures that vitamin C requirements are more than fulfilled. The changes will also raise intake of vitamin $B_2$.

The chief cereal in both the "ill-balanced" and "well-balanced" diets is milled rice. If, however, the staple is wheat or millet, the principle of balance between the cereal and the other elements in the diet applies equally.

## THE EFFECT OF COOKING ON NUTRITIVE VALUE

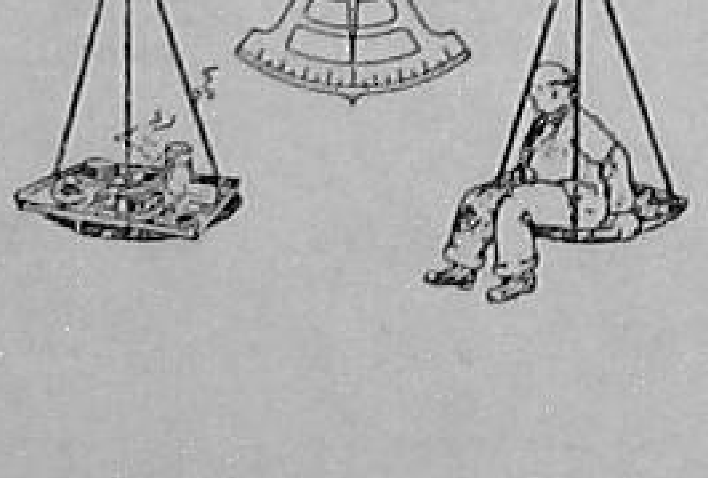
The effect of heating and cooking on the nutritive value of foodstuffs is, on the whole, less pronounced than is generally supposed. Vitamin C is destroyed by moderate degrees of heating, and for this reason the inclusion of some raw fruit in the diet is desirable. Ordinary cooking causes little loss of proteins, fats, and carbohydrates in cereals, and pulses; in the case of vegetables, however, there may be some protein lost in boiling, particularly when salt is used in cooking. There is a considerable loss of minerals and of the B group of vitamins when foods are washed and cooked; this loss is particularly large in the case of phosphorus

in rice. During washing considerable amounts of minerals pass into the water, the proportion removed being greater than that removed by the subsequent cooking. Contrary to the general belief, rice "congee" is not as a rule rich in elements contained in the original rice, and should not be regarded as being of high nutritive value.

Rice of poor commercial quality naturally tends to require more washing than rice of good quality, and the loss of mineral matter and B vitamins from such rice may be very considerable.

Frying does not lead to much change in the nutritive value of foodstuffs, whether these are fried in deep or shallow fat. If ghee or butter is used for frying, there is some destruction of the vitamin A which these substances usually contain. The vitamin A and carotene in most foods are not seriously affected by ordinary cooking. The addition of bicarbonate of soda to cooking water for the preservation of colour or to facilitate cooking, tends to promote vitamin destruction. Conversely, a substance like tamarind with a high acidity has, when added to cooking water, a preservative effect. Needless to say water in which vegetables have been cooked should not be thrown away but should be used in preparing curries, gravies, etc., to ensure intake of a full amount of the vitamins and minerals required daily.

Most people are not aware of the natural flavour of food because their taste is perverted by the use of chillies, vinegar, and heavy spices. We have no control over our appetite and tastes with the result that we are physically weak, mentally clouded, with no clear vision and perspective. The supreme importance of the science of dietetics in the scheme of our national regeneration cannot be over-emphasized, so in order to build a strong body and avoid many and perhaps all of the ills and complaints which attack our race, let us eat what we want after we have eaten what we should; eat only when hungry; better under-eat than over-eat; in eating let judgment dictate and not desire. Remember that we eat to live and not live to eat.



# Diet and Diabetes

DIABETES is a disorder of the body due to an insufficient supply of a substance called "insulin" which is supplied by the pancreas, an organ in the abdominal cavity. One or more of the following symptoms and physical findings can be seen in every case of diabetes.

1. Spongy gums or bleeding gums with the development of pyorrhœa.
2. Dry skin.
3. Hæmorrhage into the eyes producing defective vision.
4. Oedema of the face—noticed usually only by the patient.
5. Loss of weight.
6. Excessive thirst.
7. Frequent urination.
8. Frequent infections which do not heal such as carbuncles, infected toes, ulcers of the legs, and so forth.
9. Enlarged liver—especially in children.

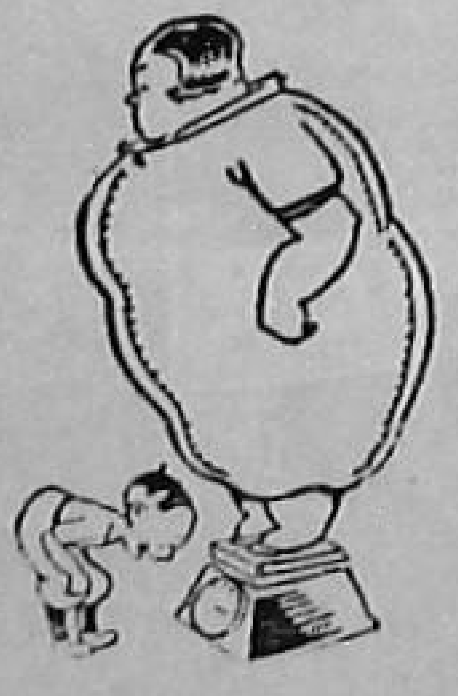
While the actual cause of the inadequate secretion called insulin is not known, it is a well established fact that those patients with diabetes eat to excess of cereals such as rice and also sugars. The average Indian diet is made up of four times as much rice as all other foods combined. Many patients put sugar in their milk, coffee, vegetables, and even meats. Many cases of diabetes have been allowed to progress so far that permanent damage has already been done to the body. Lack of bulk in the diet and especially lack of raw foods such as celery, cabbage, lettuce, carrots, tomatoes, and greens, are other causes, because poor bowel elimination means wholesale poisoning which affects the kidneys, pancreas, and liver—all vital organs of the body.

The diet for diabetes can be suggested here only in a general way, since each case is an individual problem depending on how your body responds to treatment and diet. Frequent laboratory tests of blood and urine and your physician's advice are necessary to establish a proper

basis for a routine to follow in a case of diabetes. Everyone should visit his physician for an examination and tests of blood and urine each year to be certain that diabetes or some other serious condition is not getting a deep-seated hold on his system. The best date for this annual check-up is one's birthday, and then it will not be so easily forgotten.

In advising the type of diet to be taken by one having diabetes, the aim is directed first of all toward a well-balanced diet supplying all the necessary minerals, vitamins, and liquids as well as sufficient energy foods to keep the patient well nourished and able to do his work. A man doing coolie work requires half again as much food as a clerk who is doing no hard labour. The average rice-eater's diet is practically all milled rice with very small amounts of vegetables, milk, pulses, and fats, and this diet encourages the development of vitamin deficiency diseases.

A well-balanced diet for good health costs twice as much money as the previous type mentioned and at the present living standards is too expensive for the average Indian villager. Nevertheless health is always cheaper than sickness and there are certain things that can be done. Since in many diets in India the main foods in quantity are cereals, undermilled rice, whole wheat, or one of the millets are far better than the usual polished rice. Special emphasis should be laid on the eating of pulses, green leafy vegetables, and inexpensive varieties of fruit. When grains and seeds are sprouted, they contain an additional food element which helps to prevent scurvy. In places where there is an inadequate amount of fruits or tomatoes, the sprouted seeds and beans are a good substitute and an aid to health.



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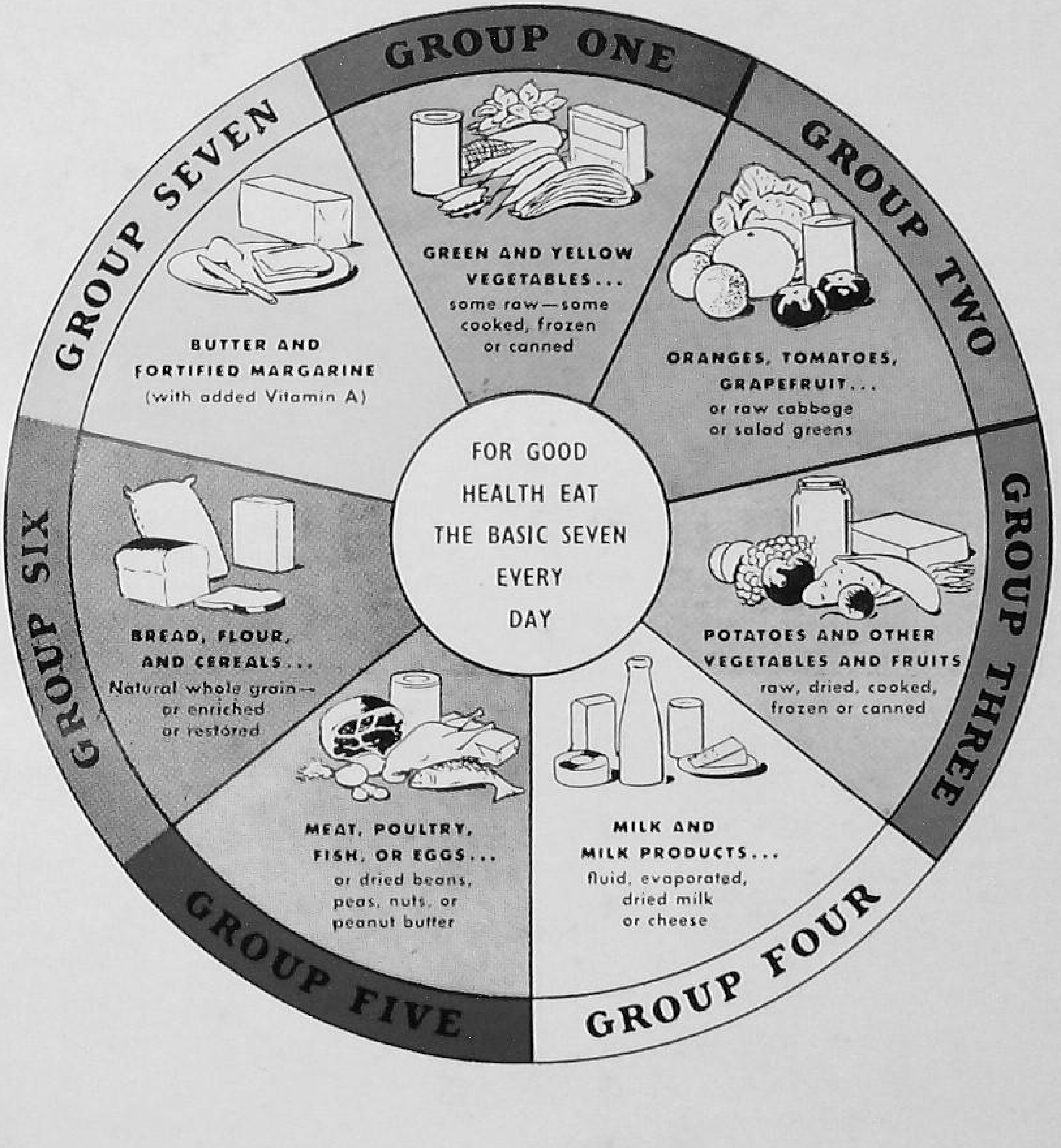
# WHAT SHALL WE EAT?

## Nutritians Recommend The Basic Seven Food Groups




Even in areas of strict rationing, adequate diets can be maintained when people learn how to use BASIC 7 FOOD GROUPS. The following pages give valuable assistance in the selection of foods for each day according to good nutritional standards.

# Select Foods From the Seven Basic Groups

| | |
|---|---|
| ***From Group I*** | |
| Green and Yellow Vegetables, raw or cooked | *1 serving a day.* |
| ***From Group II*** | |
| Oranges, Tomatoes, Mosambi, Grapefruit, Raw Cabbage, Salad Greens | *1 serving a day.* |
| ***From Group III*** | |
| Potatoes, Other Vegetables and Fruits, raw, cooked, or dried | *2 or more servings a day.* |
| ***From Group IV*** | |
| Milk and Milk Products, fluid, evaporated, dried milk, or cheese | *For children, expectant or nursing mothers: 1 quart milk a day. Others: 1 pint a day.* |
| ***From Group V*** | |
| Eggs, Pulses, Nuts, Fish Poultry, or Meat | *3 eggs a week, and one serving of some other food from this group every day.* |
| ***From Group VI*** | |
| Breads, Cereals . . . natural whole-grain, unpolished rice | *3 or more servings a day.* |
| ***From Group VII*** | |
| Butter, Ghee, Margarine, Edible Fats | *Use in cooking or spreads as you like and supplies permit.* |

| PLANNING FOR GOOD NUTRITION | PROTEINS | CALORIES | MINERALS | VITAMINS |
|---|---|---|---|---|
| | FOR BUILDING AND REPAIRING BODY TISSUES | FOR FURNISHING BODY WITH HEAT AND ENERGY | FOR REGULATING BODY PROCESSES DEVELOPMENT OF BONES AND TEETH | AS AIDS TO SMOOTH AND EFFICIENT BODY FUNCTIONING |

## PROTEINS PRIMARILY BUILD AND REPAIR BODY TISSUES

Eaten in excess of body-building and repair needs, they become a source of Calories

**Children** should get their protein from milk and suitable portions of other simple, well-prepared food as provided for the rest of the family.

***Each day choose protein foods from the following groups:***

CHOOSE ONE FROM THIS GROUP EVERY DAY

| FOR CHILDREN | FOR ADULTS | |
|---|---|---|
| MILK, WHOLE, FLUID . . . THREE-FOURTHS TO 1 QT. | MILK, WHOLE OR SKIMMED . . . . . . . . . . | 1 PT. |
| MILK, EVAPORATED OR POWDERED . . . . . . THREE-FOURTHS TO 1 QT. | MILK, EVAPORATED OR POWDERED . . . . . . | 1 CUP |
| | CHEESE, COTTAGE . . . . . . . . . . . . . . | 3 OZ. |

FOLLOW THE DOCTOR'S DIRECTIONS IN PREPARING MILK FORMULA FOR THE BABY.

## CHOOSE THREE OR MORE FROM THIS GROUP EVERY DAY

CHOICE MAY BE THREE OR MORE PORTIONS OF THE SAME ITEM
OR INCLUDE SEVERAL DIFFERENT FOOD ITEMS

CORN (MUCCA) BREAD . . . . . . . . . . . . . 2″ CUBE
CORN (MUCCA) ROASTING . . . . . . . . . . . . 1 EAR
CORNMEAL PORRIDGE . . . . . . . THREE-FOURTHS CUP
CEREALS, READY TO EAT . . . . . . . . . . . . 1 OZ.
CHICKEN . . . . . . . . . . . . . . AVERAGE SERVING
DHAL . . . . . . . . . . . TWO-THIRDS CUP, COOKED
EGGS . . . . . . . . . . . . . . . . . . . . . . 2
FISH (ANY KIND) . . . . . . . . . . . . . . . 5 OZ.

MACARONI . . . . . . . THREE-FOURTHS CUP, COOKED
MUTTON, LEAN . . . . . . . . . . . . . . . . 4 OZ.
OATMEAL PORRIDGE . . THREE-FOURTHS CUP, COOKED
PORRIDGE (CRACKED WHEAT) . . .
. . . THREE-FOURTHS CUP, COOKED
ROLLS (CINNAMON OR DINNER) . . . . . . 2 MEDIUM
PEAS, DRIED . . . . . . . . ONE-HALF CUP, COOKED
RICE PUDDING . . . . . . . . . . . . TWO-THIRDS CUP

FOR ADEQUATE PROTEIN, VEGETARIAN DIETS SHOULD HAVE MORE LIBERAL QUANTITIES OF CHEESE, EGGS, MILK, PULSES, LEGUMES, CEREALS, AND NUTS THAN DIETS WHICH INCLUDE FLESH FOODS.

# CALORIES ARE MEASURES OF THE HEAT OR ENERGY VALUES OF FOOD.

*Sugars, fats, and starches are the principal sources of calories. Protein eaten in excess of the body's needs for building and repairing also furnishes calories.*

## THESE FOODS PROVIDE ABOUT 100 CALORIES EACH

APPLE . . . . . . . . . . . . . 1 LARGE
AVOCADO (BUTTER FRUIT) . 1 SMALL
BAMBOO SHOOTS . . . . . . . 7 OZ.
BANANA . . . . . . . . . . . 1 SMALL
BAKED BEANS . . . ONE-THIRD CUP
GREEN SNAPS . . . . . . . . 2 CUPS
BEANS (LIMA OR BROAD BEANS) FRESH, CANNED OR DRY . . .
. . . ONE-THIRD CUP, COOKED
BEETROOT (2″ DIAM.) . . . . . . 4
BISCUITS . . . . . . . . . 2 MEDIUM
BREAD (WHITE OR WHOLE WHEAT, FRESH OR TOASTED) . . .
. . . ONE AND HALF SLICE
BRINJALS . . . . . . 4 TO 6 MEDIUM
BUTTER . . . . . . . 1 TABLESPOON
BUTTERMILK . . . . . . . . ONE CUP
CABBAGE (RAW) . . .
. . . THREE AND HALF CUPS CHOPPED
CAULIFLOWER . . . . . . . 1 SMALL
CARROTS . . . . . . 3 TO 4 MEDIUM
CEREALS (HOT COOKED OATMEAL, SEMOLINA OR CORNMEAL) . . .
. . . ONE-THIRD CUP
CUCUMBER . . . . . . . . . 2 LBS.

CHEESE (SOLID TYPES) . . . .
. . . ONE AND ONE-EIGHTH INCH CUBE
CHEESE (COTTAGE) . . .
. . . 5 TABLESPOONFULS
CORN (MUCCA) ROASTED EAR . . .
. . . 1 MEDIUM
CORIANDER LEAVES . . . . . 7 OZ.
CURRY LEAVES, PARTICULARLY DRUMSTICK LEAVES . . . . 4 OZ.
DHAL . . . . ONE-THIRD CUP, COOKED
DRUMSTICKS . . . . . . . . . 12 OZ.
EGGS . . . . . . ONE AND ONE-THIRD
FLOUR (MAIDA OR ATTA) . . .
. . . QUARTER CUP
GHEE . . . . . . . 1 TABLESPOONFUL
GUAVA (COUNTRY) . . . 4 MEDIUM
GOURD (SNAKE) . . .
. . . ONE AND ONE-FOURTH LB.
GOURD (BITTER) SMALL . . . 6 OZ.
MARROW . . . . . . . . . . . . 1 LB.
GOOSEBERRY, CAPE . . . . . . 6 OZ.
GREENS (SPINACH, TURNIP TOPS, ETC.) . . . TWO AND ONE-HALF CUPS
GRAPEFRUIT . . . ONE-HALF, MEDIUM
JACKFRUIT . . . . . . . . . . . 8 OZ.

JAGGERY . ONE-HALF TABLESPOONFUL
KNOL-KHOL . . . . . . . . . 3 LARGE
LADY'S-FINGERS . . . . . . . 10 OZ.
MACARONI, SPAGHETTI, ETC. . . .
. . . THREE-FOURTHS CUP, COOKED
MANGO. . . . . . . . . . . . 1 LARGE
MAYONNAISE DRESSING . . .
. . . 1 TABLESPOONFUL
MILK, SKIMMED OR FLUID . . .
. . . ONE AND ONE-EIGHTH CUP
NEEM, TENDER LEAVES . . . . 2 OZ.
ORANGE OR SWEET LIME . . 2 MEDIUM
PALMYRA FRUIT . . . . . . . . . 6
PAPAYA . . . . . ONE-HALF, MEDIUM
PEAS, GREEN . . THREE-FOURTHS CUP
PEAS, DRY . ONE-THIRD CUP, COOKED
PEACHES . . . . . . . . . 2 MEDIUM
PINEAPPLE . . . . . . . . . 1 SMALL
PLANTAIN (GREEN) . . . . 2 LARGE
POMELO . . . . . ONE-HALF, MEDIUM
POMEGRANATE . . . . . . . 1 MEDIUM
POTATOES, BOILED OR BAKED . . .
. . . 1 MEDIUM
TOMATOES . . . . . . . . 4 MEDIUM
TOMATO JUICE . . . . . . . . 2 CUPS

## FOODS CONTAINING 200 CALORIES

BREAD PUDDING . . . ONE-HALF CUP
CAKE WITHOUT ICING . . . . 2″ CUBE
CHICKEN, ROASTED OR FRIED . . .
. . . SMALL SERVING
COCOA (MADE WITH WHOLE MILK) . .
. . . TWO-THIRDS CUP

CUSTARD . . . . . . TWO-THIRDS CUP
CURDS (WHOLE MILK) . . .
. . . ONE AND ONE-QUARTER CUP
FISH . . . . . . . . AVERAGE SERVING
ICE CREAM . . . . . . SMALL SERVING
MILK (WHOLE OR FLUID) . . .
. . . ONE AND ONE-FIFTH CUP
MUTTON ROAST . . . SMALL SERVING
SEMOLINA PUDDING . ONE-HALF CUP
SOYA BEANS . . .
TWO-THIRDS CUP, COOKED
TAPIOCA PUDDING . . ONE-HALF CUP

## FOODS THAT PROVIDE 300 TO 400 CALORIES

CAKE, ICED . . . AVERAGE SERVING
CURRY AND RICE . . . SMALL PLATE

JALEBIS . . . . . . . . . . . . 2 LARGE
GULAB JAMAN . . . . . 1 ORDINARY

MUTTON CHOP . . . . . . . . 1 LARGE
PASTRIES . . . . . . . . . . 1 MEDIUM

PULAU, MUTTON OR CHICKEN . . . . . . LARGE CUP

THIS IS **WASTE**

Overcooking vegetables

THIS IS **THRIFT**

Cooking vegetables until they are just tender ...not mushy

THIS IS **WASTE**

Holding vegetables too long before serving

THIS IS **THRIFT**

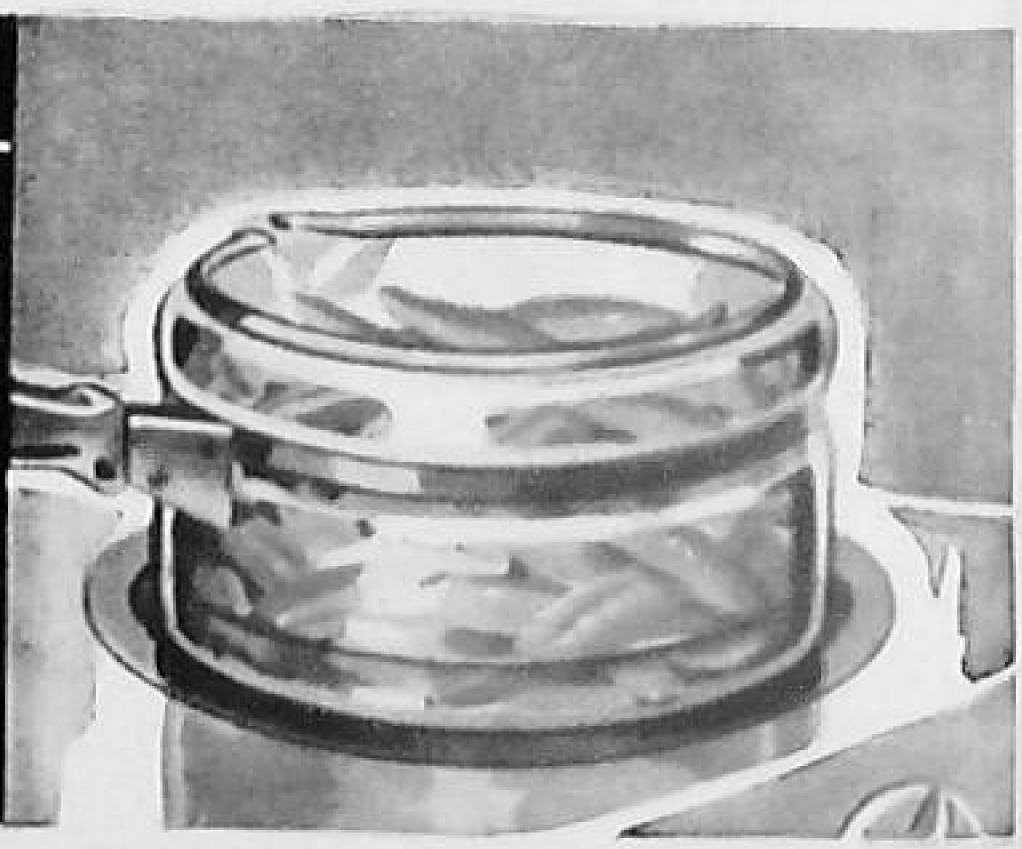
Serving vegetables as soon as they are cooked

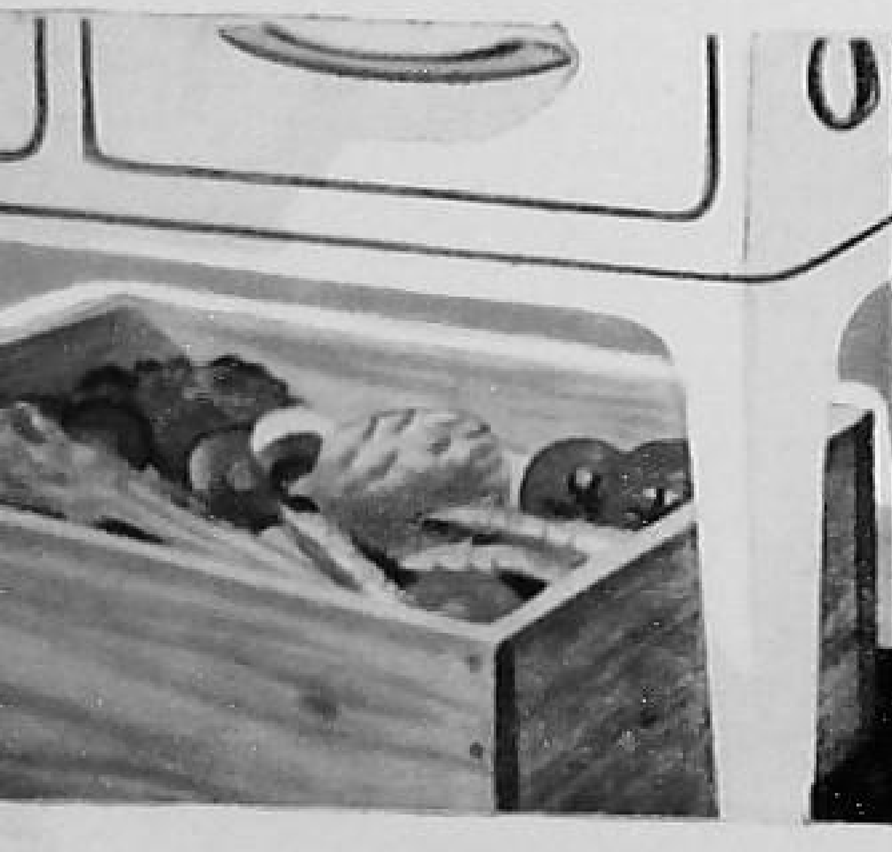
THIS IS **WASTE**

Using large amount of cooking water

THIS IS **THRIFT**

Using small amount of cooking water



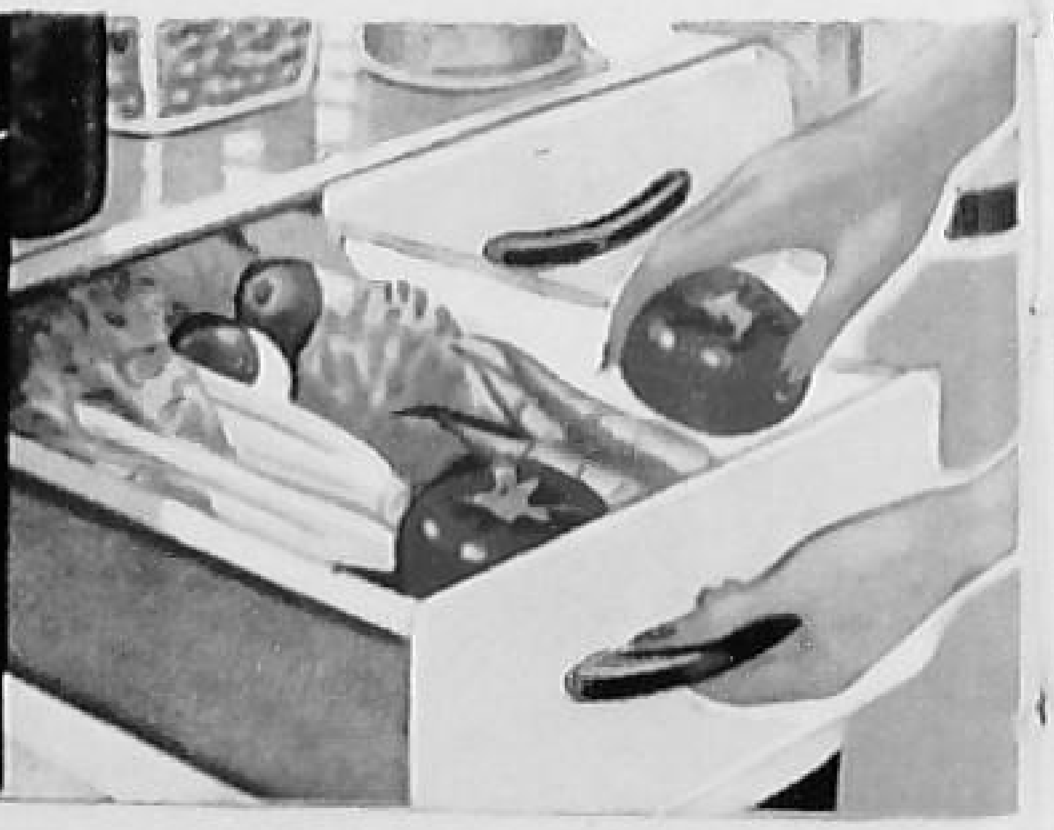


THIS IS **WASTE**

Storing fresh, leafy vegetables in warm place

THIS IS **THRIFT**

Storing fresh garden foods in a cool, moist place



We can get all the Vitamins, all the Minerals, all the Proteins,

Hm26

THIS IS **WASTE**

Draining cooking or canning liquid into the sink

THIS IS **THRIFT**

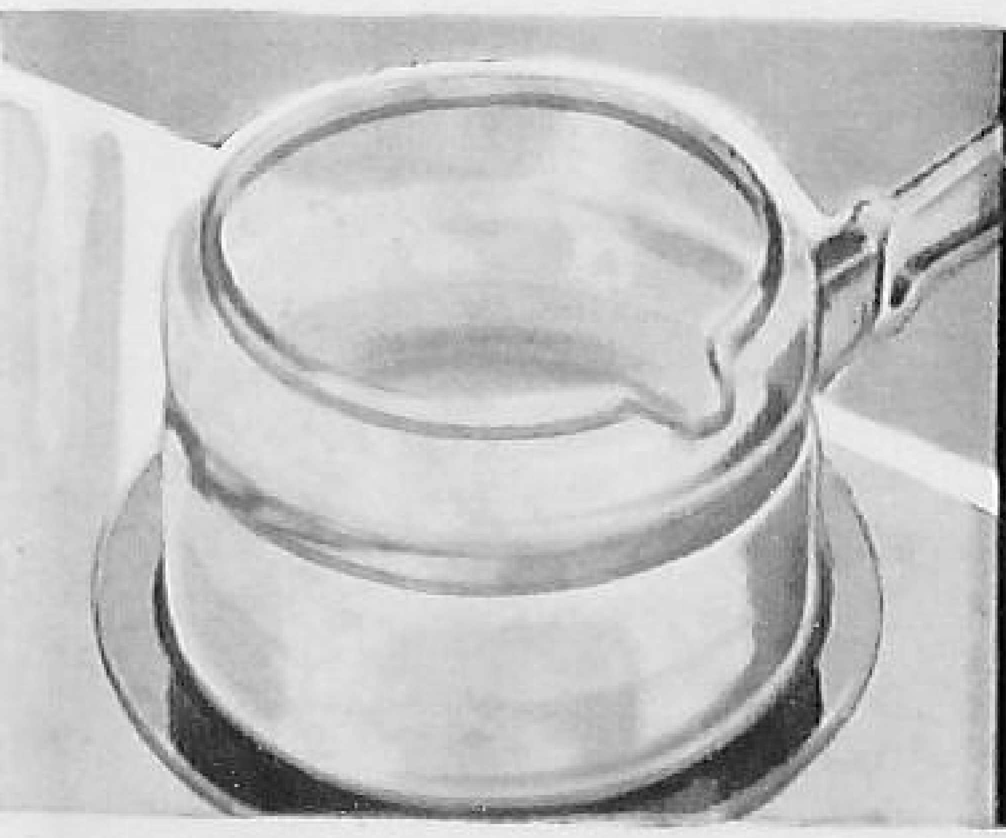
Using cooking liquid for gravies

THIS IS **WASTE**

Discarding beet and turnip tops and green leaves on cauliflower

THIS IS **THRIFT**

Cooking these green leaves as a vegetable



THIS IS **WASTE**

Starting in cold water

THIS IS **THRIFT**

Starting in boiling water

THIS IS **WASTE**

Adding soda to green peas destroys vitamins

THIS IS **THRIFT**

Cooking vegetables properly will retain color. Do not use soda

all the energy we need from foods . . . if we learn how to use them

# Overweight is a health hazard

We become overweight or fat, not because we include certain foods in our diet, but because the total sum of all the calories in the diet exceeds the calories needed by our bodies to furnish heat and energy.

### Nine simple rules for control of weight

1. Eat three simple nutritious meals a day.
2. Don't eat between meals.
3. Don't over-eat at the meal-time.
4. Don't eat lots of fried food.
5. Don't eat rich desserts after a full meal.
6. Don't eat over-sweetened foods.
7. Don't take extra beverages between meals.
8. Don't eat an extra lunch at bed-time.

### UNDERWEIGHT IS ALSO A HEALTH HAZARD.

Dietary restrictions that lead to great loss of weight are serious health hazards. In adolescence a few pounds overweight is an asset to health.

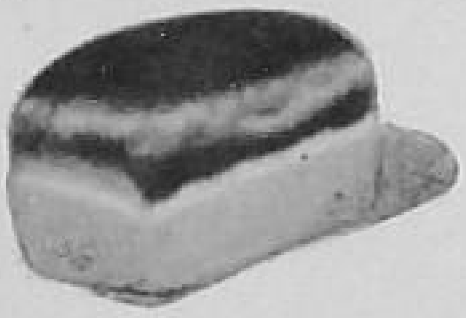
# MINERALS

are essential for regulating body processes and the development of teeth and bones. In food selection only three minerals need be kept in mind:

***Calcium, Iron, and Phosphorus.***

### *When you think of* **MINERALS** *think of these:*

MILK FOR CALCIUM AND PHOSPHORUS



ENRICHED BREAD FOR IRON

EGGS FOR IRON AND PHOSPHORUS

GREEN LEAVES FOR CALCIUM AND IRON

| FOODS RICH IN CALCIUM | FOODS RICH IN IRON | FOODS RICH IN PHOSPHORUS |
|---|---|---|
| CURRY AND DRUMSTICK LEAVES | GREEN LEAFY VEGETABLES | MILK, ALL KINDS |
| MILK, WHOLE OR SKIMMED | RAGI AND CHOLAM | UNPOLISHED RICE |
| CHEESE, HARD KINDS | GREEN MANGOES | BEANS, DRIED |
| CABBAGE, GREEN | WHOLE WHEAT | WHOLE GRAINS |
| LEAN MEATS | BITTER GOURD | SOYABEANS |
| TAMARIND | CASHEW-NUTS | OATMEAL |
| CURDS | GROUND-NUTS | PARSLEY |
| GRAM | LIVER | CUMBU |
| EGGS | EGGS | CURDS |
| RAGI | DHAL | FISH |

SALT: During profuse perspiring, we lose not only moisture from the skin, but also salt. Persons exposed to extremely hot temperatures should add a small amount of salt to their drinking water.

## YOUR BODY CANNOT FUNCTION WITHOUT VITAMINS.

VITAMIN "A" is essential for normal development and upkeep of the skin, mucous membranes or inner linings of body organs.

RICH SOURCES OF VITAMIN "A"

APRICOTS, FRESH OR DRIED
CARROTS, DEEP YELLOW
BUTTER AND GHEE
FISH LIVER OILS
BEET GREENS
OKRA
EGGS

TOMATOES

MILK OF ALL KINDS
SWEET POTATOES
RED PALM OIL
MANGOES
PUMPKIN
PAPAYA
LIVER

# ASCORBIC ACID (VITAMIN "C")

is essential for normal development of intercellular substances.

***Sources of ASCORBIC ACID are many.***

Grapefruit

Orange

Tomato

Green Leaves

Potatoes and White Turnips

SOME OF THESE FOODS SHOULD BE EATEN DAILY

ORANGE OR SWEET LIME
GREEN CHILLIES
GRAPEFRUIT
CABBAGE
GREENS

LEMON OR LIME (NIMBO)
GUAVAS (COUNTRY)
BAMBOO SHOOTS
DRUMSTICK
AMARANTH

Ascorbic acid dissolves in cooking fluids and is destroyed by soda. Eat these foods raw or cook in a minimum of water.

*VITAMIN "D" is essential for growth and promotes the absorption of phosphorus and calcium. It is not provided in adequate amounts in ordinary food items.*

***The only adequate sources are*** ☞

FRESH MILK AND EGGS
FISH LIVER OILS
VITAMIN D CONCENTRATES
EXPOSURE OF THE BODY TO THE RAYS OF THE SUN

Eat the protective foods—whole cereal grains, unpolished rice, milk, eggs, green leafy vegetables, fresh fruits, and pulses. Also expose the body to the sun and you will obtain the minerals and vitamins your body needs.

# VITAMIN "B" FAMILY

Twelve members of the family have been discovered, and three are of the greatest importance to our well-being. They occur in various preparations in a wide variety of foods.

## SEE WHERE THEY ARE FOUND

### THIAMINE

AND

+

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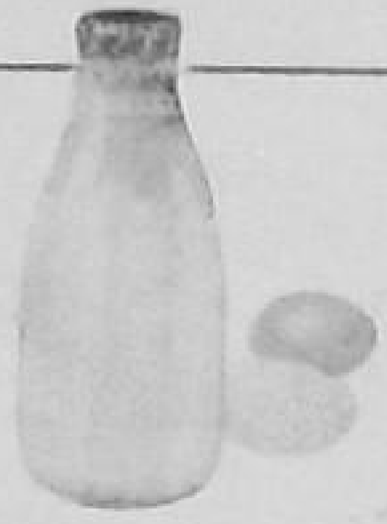

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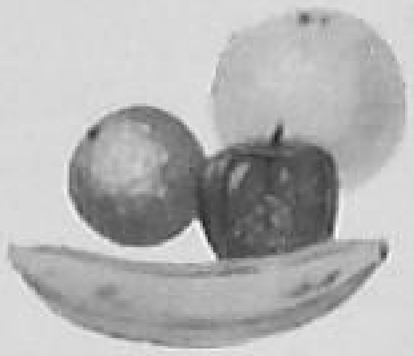


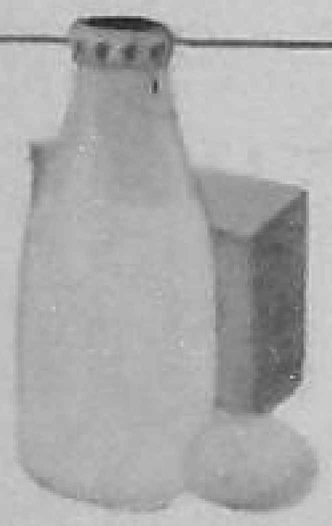
**Cereal Products**
WHEAT BREAD WHEAT FLOUR
CEREAL BREAKFAST FOODS

**Vegetables**
POTATOES, PEAS
DRIED BEANS AND GRAM

**Eggs and Dairy Products**
FLUID MILK EGGS

**Fruits and Nuts**
BANANAS APPLES
CITRUS FRUITS

### RIBOFLAVIN



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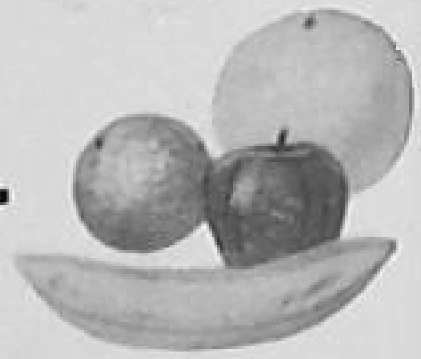

**Eggs and Dairy Products**
FLUID MILK EGGS

**Cereal Products**
WHEAT BREAD ATTA
CEREAL BREAKFAST FOODS

**Vegetables**
GREEN LEAFY VEGETABLES
POTATOES GREEN PEAS

**Fruits and Nuts**
CITRUS FRUITS
BANANAS APPLES

### NIACIN

AND

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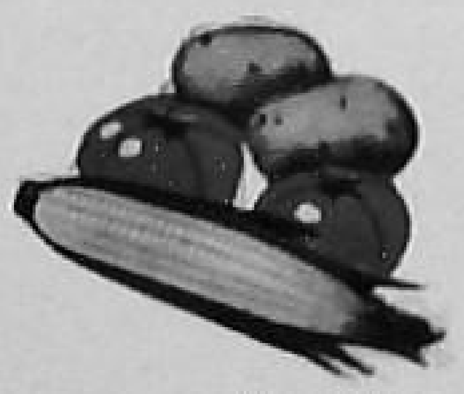

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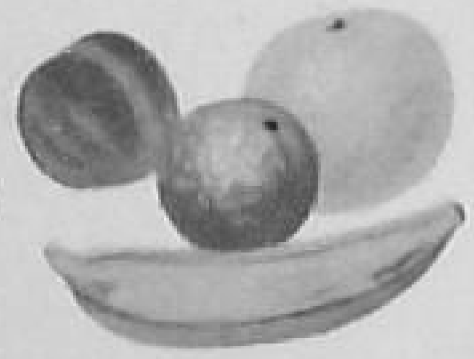


**Cereal Products**
WHEAT BREAD ATTA
CEREAL BREAKFAST FOODS

**Vegetables**
POTATOES, CORN (MAIZE)
TOMATOES

**Eggs and Dairy Products**
FLUID MILK EGGS

**Fruits and Nuts**
BANANAS PEACHES
CITRUS FRUITS

B VITAMINS are soluble in water. For this reason use the minimum possible water in cooking fruits and vegetables. Do not discard water, but drink as soup. Soda destroys Thiamine.

# How to Treat Heart Disease

THE first principle in successful treatment of any disease is to recognize whether the condition actually exists.

In order to make this article practical, I shall emphasize what you, reader, yourself can do and also what additional help is available to you from your physician. The two more common heart ailments will be considered: first, rheumatic heart disease, and second, coronary heart disease, which includes the conditions termed angina pectoris and coronary thrombosis, or clot.

There are a large number of heart lesions due to specific infections. The most important of these is rheumatic fever, which is no respecter of persons. Predisposing factors are unhygienic living conditions and malnutrition in the poor, with their improper diets, as well as the rich with their finicky appetites. Since, however, the specific cause is unknown, it is not yet possible to prevent this malady entirely, but its incidence can be greatly reduced. Provide good nutrition not only for the older children but for babies, and, to go still further back, for the fathers and mothers who plant the seed for the eventual child. Further insurance may be had by providing plenty of fresh air and encouraging healthful activity and sunshine.

Once the illness has appeared, the most important single factor to regain well-being—indeed, to save the life—is rest in bed. The usual period is a minimum of three weeks, but it may be as long as six months, depending on the severity of the case. It must be determined by the attending physician. In some cases rest may be partial; in others, more complete, even excluding visitors for a time. A high-vitamin diet is essential. Certain medicines, salicylates, reduce fever, relieve pain, and aid in shortening the disease.

One attack of rheumatic fever apparently paves the way for still other attacks. Each flare-up is likely to in-

crease the heart damage. Hence, it is important to prevent frequent colds and infections which predispose to rheumatic attacks. Colds are decreased by protecting oneself from contact with people who have colds, improving the general resistance, taking cool tonic baths, obtaining a well-balanced diet, getting plenty of sleep and out-door exercise, and having diseased tonsils, adenoids, and so forth removed. After testing 150,000 men, the Navy of one country found that the use of small doses of certain types of sulfa medicines (never taken except under supervision of a physician) throughout the winter months cuts down the incidence of colds tremendously.

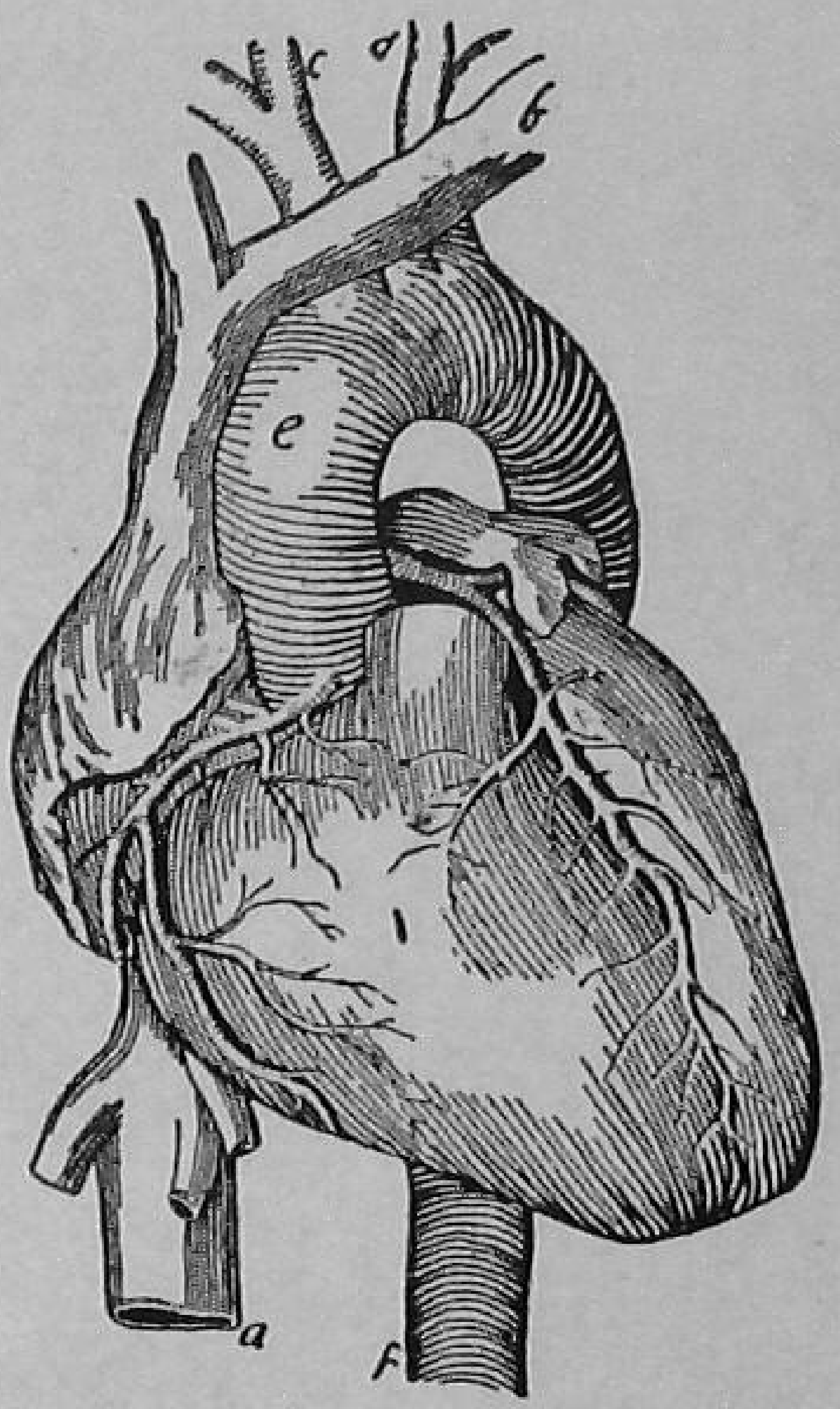
In those suffering from rheumatism such a measure is a very desirable insurance. For the child this programme may be continued five winters continuously, till he has had a chance to rebuild his own immunity, or has become older, when flare-ups become less common. Treated carefully, these patients need not be made child invalids, or later as adults, heart cripples.

Coronary heart disease, or narrowing of the small blood vessels that nourish the heart muscle itself, is very prevalent, crippling and killing in the prime of life. This process is termed sclerosis, and is the thickening of the vessel wall, similar to collection of rust in a pipe. It causes narrowing of the tubes. Less blood can flow through. The plumber has an advantage over the doctor. He can scale the rust off—if necessary take the rusty pipe off to clean it. Doctors cannot do that. Among accepted causes of coronary heart disease are over-work, with its accompanying heart and blood vessel strain, high blood pressure, infection allergy, heredity (often several members in one family), endocrine imbalance, faulty fat assimilation (as found in diabetics and others). Rheumatism and syphilis also produce blood-vessel inflammation and add to the number of the above cases.

Angina pectoris is a symptom produced by insufficient blood flow through the coronary arteries supplying the heart muscles. It may be a cause of sudden death. Treatment is designed not only to relieve the immediate attack of pain but to prevent its onset. This can be achieved in the majority of instances by intelligent co-operation between the patient and his doctor. Fear, worry, and fatigue, which give rise to functional heart symptoms, may act like angina pectoris, and so confuse the casual observer. However, the sufferer's description of the attack and a routine electrocardiogram (a tracing of the heart contractions) call for the diagnosis of coronary heart disease. The greatest incidence, 88 per cent of angina pectoris and blood clots that form in the small coronary arteries or their branches,

occurs between the ages of forty and seventy years.

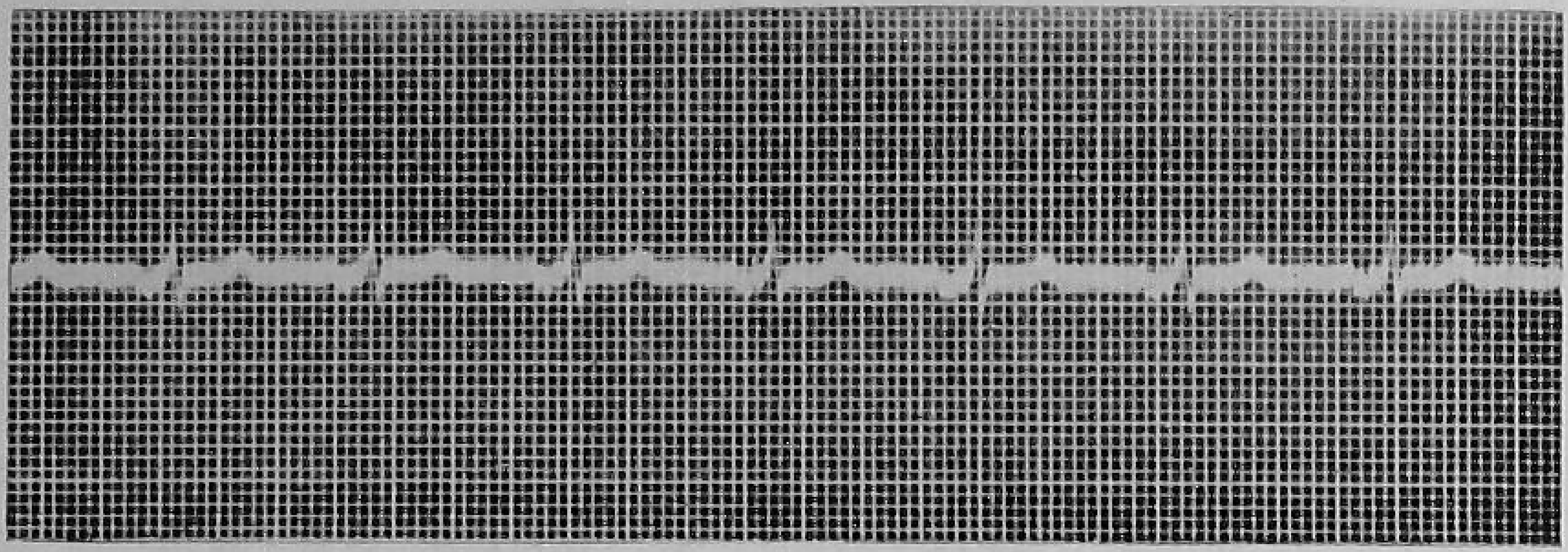
Coronary disease due to syphilis can be treated by specific medication. Others (the majority) have to be treated by more general measures. Prevention goes back to correction of causes which are not yet fully understood. Clearly, one cannot change his heredity. But he can leave a better legacy to his posterity. The matter of clean living now comes to the forefront: regular habits; eating simple, nourishing foods; avoiding harmful practices, such as the free use of spices and condiments, tobacco and alcohol; and the frequent recourse to drugs; along with intemperance in physical work as well as nervous overwork.



A man's heart beats 100,800 times a day.

Angina pains can be prevented specifically by three measures: (1) Control of the activity that excites pain. If eating a very large meal, nervous excitement, over-exertion, the use of tobacco or coffee, straining with a constipated stool, or exposure to cold excites pain, an attempt must be made to eliminate the factor. (2) Adequate rest, either at home or on a lazy holiday elsewhere, or absolute bed rest in some cases for days or weeks. Reasonable judgment must be used in this matter. We must balance the desire for length of life against the happiness of that individual. If we keep him so restricted that he becomes depressed and unhappy, we may actually defeat our purpose. Longer life at the expense of happiness cannot always be counted gain. In medicine our aim is not only to add years to the life but to add life to the years. (3) The use of medicines that will increase the opening in blood vessels. Quick-acting medicines such as nitrites may be used a few minutes before certain unavoidable activities which experience has shown may cause pain. This may include going for a stool, eating a meal, or getting out of bed.

What about treatment of the actual attack of anginal pain: Shall we just



A machine known as the electro-cardiograph is used to record a change of the heart beat as an aid in diagnosing disorders of the heart.

"not give in to it"? The first natural impulse of the stricken individual is to stop whatever he is doing and rest. Rest is always advisable. Not to rest is dangerous and an invitation for serious increase in the pain and even sudden death. Anyone who knows he is subject to angina should carry with him a supply of nitroglycerine tablets of the strength decided upon by his physician. A tablet dissolved under the tongue usually gives prompt relief from pain within five minutes. Subsidence of pain is the signal that the rest period is over. The effect of that tablet will last about thirty minutes; hence, it is used only as a shock trooper for rapid but short-lived effect. For longer-lasting effect the heavier infantry is called in—medicines such as erythrol tetranitrate, which is too slow in getting there for an emergency attack. It requires fifteen to thirty minutes to be felt, but once arrived on the field, the effect is retained for three hours.

Angina is evidence usually of serious heart-vessel disease. Nevertheless, with treatment as outlined above, life may be prolonged usefully for many years.

Coronary thrombosis is the sudden closure, with a blood clot, of one of the vessels that nourish the heart. It results in paralysis of part of the heart muscle. The typical symptoms are acute collapse, accompanied by a cold sweat all over, pain felt under the breast-bone (it may be absent or may be an abdominal pain), rapid, weak pulse, and so forth. Most people do not hesitate to call a doctor when in this condition. He will order absolute bed rest. At first that advice is easy to follow, because the patient feels ill. After a few days' rest, the heart, with its remarkable power of recuperation, may seem much better, and the patient get anxious and worried

about making a living for his family. He must learn from Uncle Joe. The old Negro was always cheerful in spite of having had more than his share of life's troubles. When asked one day, "How have you managed to remain so cheerful and calm?" Uncle Joe replied, "Well, I'll tell yo'; I'se jus' learned to co-operate wid de inevitable." With average activity the heart does the remarkable work in one day (twenty-four hours) equivalent to lifting a 150-pound man 500 feet high.

Dr. Paul White, one of the outstanding cardiologists of our time, recommends for the average case one month of bed rest; two weeks of quiet; one month of getting up—first week sitting in a chair, second week walking a little on the level, third week climbing stairs slowly once a day, fourth week riding in a car, increased to tolerance; and a third month to consolidate the gain not only physically but mentally.

Quite a few vocational possibilities remain open to these convalescents. A change of occupation may be necessary if previous employment entailed heavy physical labour.

A patient with heart disease but no failure should be allowed as much exercise as he reasonably and safely can participate in, with periods of rest as needed, because exercise maintains general good health, and good circulation and good function of the diaphragm are a very great help to the heart.

The best exercise is walking, which can be graded according to distance, speed, slope. Easy golf and croquet are good forms of exercise. Bed rest when needed is best with raised head. Complete rest in severe failure includes nursing, no visitors, and very light food.

And now to answer an important, frequent question: Should a known heart patient be allowed to become pregnant? Pregnancy increases the heart load 50 per cent, mostly near term, the ninth month. No hard and fast rule can be laid down. Pregnancy always adds to the risk, but may be allowed in selected cases. If heart-failure symptoms begin to appear, the pregnancy ordinarily is terminated; if symptoms appear late, the pregnancy may be allowed to continue, the heart failure being treated as needed, with rest and specific medicines. It must also be remembered that the strain is not only that of pregnancy and labour but also that of the increased burden of a larger family later.

In summary—the prevention and treatment of heart disease consists of adequate physical and emotional rest; certain medicines to improve heart tone and circulation, to kill specific infections, and to reduce blood pressure; dietary control to maintain adequate nutrition but prevent over-weight; avoidance of repeated infections; avoidance of harmful habits that decrease vital organic

resistance, such as the use of tobacco and alcohol; spices and condiments. And a basic foundation to all these consists in maintaining a high morale, avoiding nerve strain, controlling the emotions, following a balanced combination of work and relaxation, and living a consistent religious life, with full trust in divine guidance no matter what may be our lot.

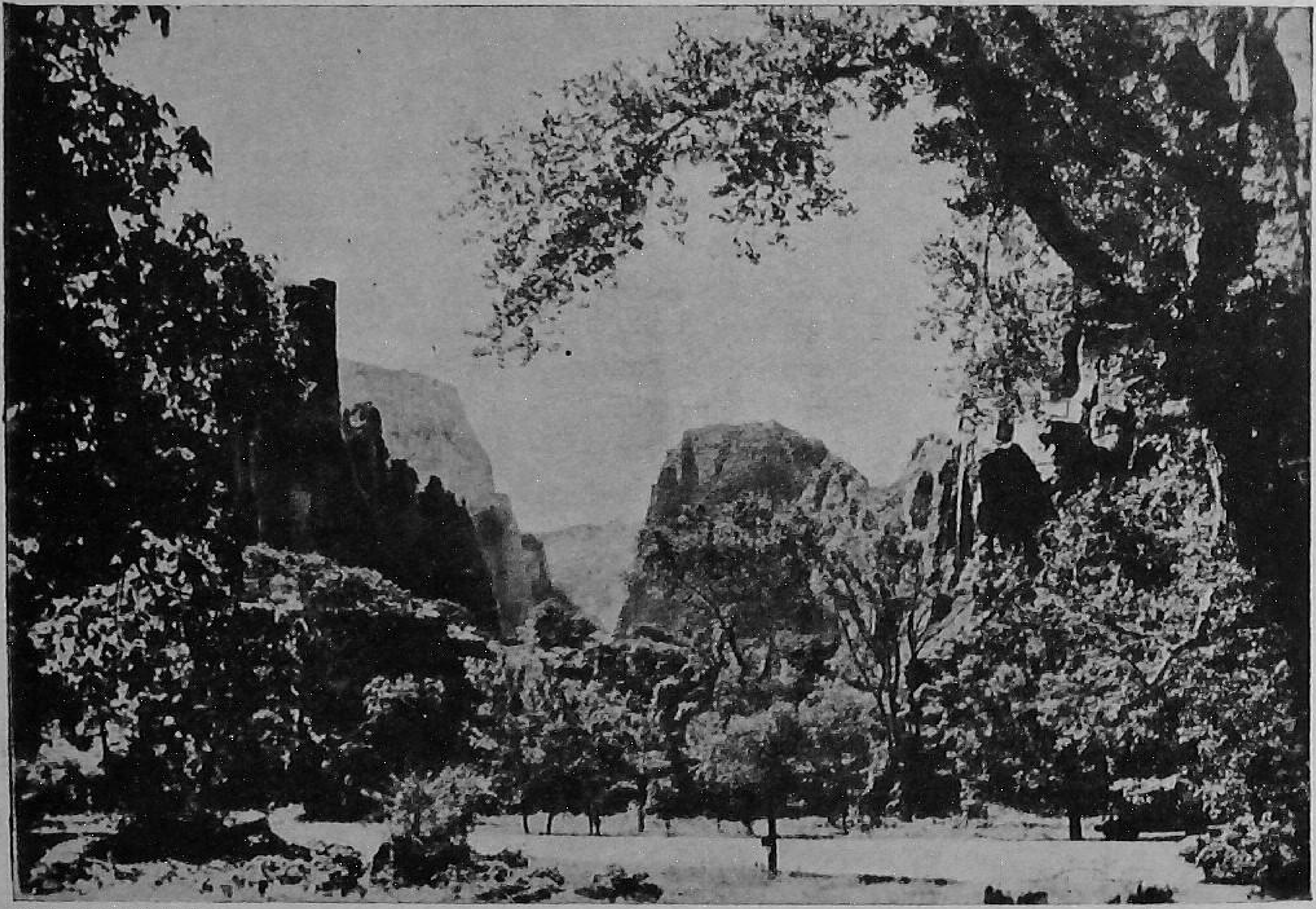


Photo by U. S. I. S.

Physical and emotional rest amidst the beauties of nature is most helpful in the prevention and treatment of heart disease.

# *What You Ought to Know about Cancer*

OUR ancestors had all sorts of notions as they watched ulcers and growths take the lives of their friends and loved ones. The bravest among them actually cut out the sores and applied various caustics, as attested to by accounts of cancer found in the oldest remnants of the literature of Egypt, Persia, and India. By the fourth century before Christ the Greek physicians had amassed some information and considerable legend about the disease. At times they actually recognized it and described it. However, they knew little more than that many ulcers and tumours were often painless, that they grew slowly, that they were found in practically any organ or tissue, and that some of them invariably progressed to fatal terminations. Various theories were propounded as to the cause of cancer, and these were, of course, fitted into the prevailing idea that all diseases were due to a deficiency or to an excess of blood, mucus, or bile.

Galen, in the second century after Christ, proposed a classification of tumours which has persisted to the present time. He taught that some tumours were *according to nature,* such as boils, some were *beyond nature,* such as calluses, and some were *contrary to nature* such as cancers. This physician also recognized that not all tumours contrary to nature were malignant, they were not all killers, even though they grew to tremendous sizes. Furthermore, Galen expanded on the theory of body fluids causing disease. He divided bile into black and yellow fractions. According to him the black fraction caused cancer. This deduction is truly remarkable in the light of our present observations that, of all chemical agents used thus far to initiate cancer experimentally in laboratory animals, methylcholanthrene, a substance derived from bile, is the most powerful.

Galen's principles dominated all medical thought until the nineteenth

century, when the infant sciences of microscopic anatomy, bacteriology, biology, and chemistry began to cast discredit on old ideas. In fact, revolutionary concepts replaced the decrepit ones and a new era was instituted. Since then, progress in the study of disease has been by leaps and bounds, and our understanding of cancer has shared liberally in this advance. It is noteworthy that some diseases which formerly used to decimate populations and scourge continents have been brought under control through knowledge gained within the memory of persons living today. Ironically, however, the conquest of infectious diseases has now made it possible for more people to live long enough to die of cancer. A harassing thought, indeed! And it prompts the first question of this quiz symposium.

### WHY SHOULD CANCER CONCERN YOU?

*Because its prevalence is increasing rapidly in all countries.*

According to statistics gathered you face a greater danger than the combat soldier during World War II. Moreover, that soldier was backed by a coordinated strategic plan of defence and attack. You face cancer practically alone, supported only by a few scattered groups of guerrillas, as it were, who until recently had no unified plan. Apparently, a definite threat to the lives of all of us is required to stimulate demand for an all-out offensive. That threat hangs over our heads at this moment. We would be greatly excited if the newspaper headlines told us that one of our large cities had just been wiped off the map, but we take comparatively little notice when told that a similar number of people were destroyed by cancer in one year's time.

What is the reason for this difference in attitude? Most of us are persuaded that a person killed by cancer is just as dead as one blown to bits. Explanation probably lies in general unfamiliarity with cancer. The word itself is shocking. A built-up phobia of some hideous monster acts as a barrier to filtration of accurate or adequate information into the consciousness of the average individual. Many persons refuse to discuss it, although they are quite sure the horrible thing is creeping up on them. This fear paralysis, caused by the unknown, must be the first objective in the concerted drive on cancer. Because you are the one who is likely to be attacked and possibly killed by cancer, it is high time you withdrew your arms from before your eyes, lifted your head, and looked at your enemy. Awareness of his methods definitely robs him of many advantages. Better face him and learn his tricks before he has the chance to put

the grip on you. Even the skilled physician cannot help you to get well if the cancer gets a head start.

### What Is Cancer?

*We can describe only its appearance and its behaviour.*

No one knows why Hippocrates, two and a half millenniums ago, chose the word *crab* (cancer) to designate the various tumours and ulcers that came under his observation. Possibly their shape or associated symptoms suggested this particular crustacean to the ancient physician. Suffice it to say that the accumulated evidence of the centuries has taught us that cancer is a new growth of tissue which pursues an impudently independent course, without regard to the rest of the body, has no definite termination of growth, serves no useful purpose, and is ultimately fatal to the individual afflicted with it. The growth kills either by expansion as a single mass, or by infiltration and destruction of normal tissues, or by spreading to various parts of the body to set up similar parasitic growths.

Like other tissues, cancer is composed of living units called cells. These cells, although they may at times appear like normal well-disciplined cells, are "armed-to-the-teeth bandits," as far as the regulatory laws of the body are concerned. Normal body barriers and defence mechanisms are shattered under their barrage. These cells invade, replace, and destroy normal tissue precisely like a horde of vandals who ravage the land without thought of future needs and eventually perish, victims of their own destruction. Why these cells behave that way we do not know. Both normal cells and cancer cells can be made to live and grow in culture mediums outside the body. Under such conditions both possess the property of unlimited growth. But if transplanted back into the body from whence they came, the normal cells immediately become obedient to the laws of the body. The cancer cells remain outlaws.

### What Causes Cancer?

*We do not know—yet!*

Present evidence points to the probability that it results from *no single cause,* and that conditions responsible for it in a given organ or tissue may bear no relation to the factors responsible in another. Cancer is the result of a special type of cell behaviour as an adaptation to environmental conditions. In this respect it does not differ from all other human maladies which are, after all, processes of cell adaptations to unfavourable environments. Any non-cancerous disease or injury which destroys much tissue may cause the remaining normal cells to multiply at an

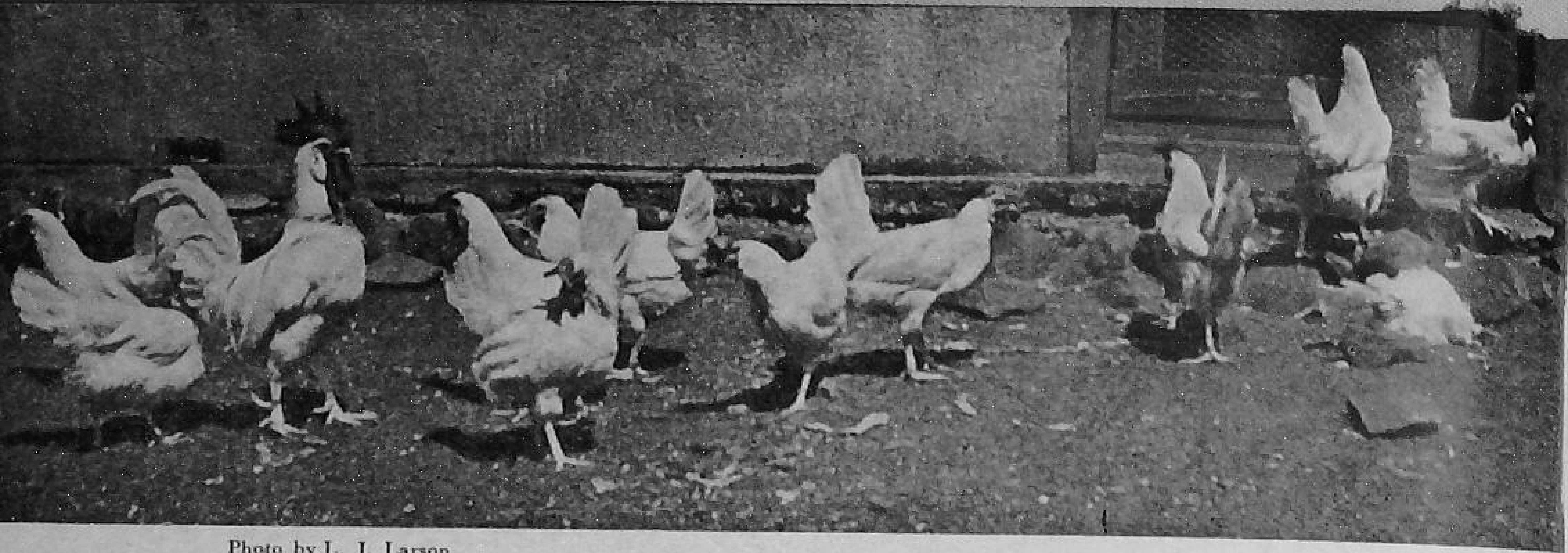


Photo by L. J. Larson

In modern poultry farms there is a high increase in the incidence of cancer among fowls. Some believe that cancer can be transferred to the human being through food.

accelerated rate. Often these rapidly proliferating cells do not appear unlike cancer cells. However, their multiplication is controlled. As soon as the necessary number of cells have been formed to carry on normal function of the organ, their speedy production ceases. Not so with cancer. Although the factors which started cancer be removed, the cells keep on with their fast disarranged growth.

All the "causes"—and the list is growing—to which cancer is attributed may be only inciting agents which, if introduced into exactly the right circumstances or conditions, can start disturbances within the cell and thereby alter its manner of development and its relationship to neighbouring cells and to the cells community. This disorganization of the inner workings of the cell is transmitted to succeeding generations of cells. Something has happened to the dynamic centre of the cell which affects its chemistry, its physiology, and its hereditary qualities. In short, it may be said that investigation of the cause of cancer undoubtedly involves probing into the ultimate mechanism of the living cell, searching for the cause of life itself. Before the cell we stand almost helpless. Within that living speck are bound age-old mysteries. Our laws of physics and chemistry break down at the cell membrane. The bridge which spans the gap between the living and the dead is concealed and apparently inaccessible. The mystery may remain forever unsolved, because it is possible that it transcends the capacity of the human mind. But this possibility need not disconcert us. We have succeeded in finding the cures for many diseases before we found their causes. Pasteur successfully treated rabies and Jenner immunized against smallpox long before anyone thought of a virus.

The thing to do, is to be always on the alert to discover anything abnormal in the body. A careful yearly check-up will protect against the development of cancer beyond the point of successful treatment. If we have any physical defects—cancer or otherwise—attention should be given to them at once, and not let them drift along.

# Some Reasons for Bad Teeth

THE hope that any disease can be entirely eliminated from the human race is almost too much to expect. However, with the discovery of the cause of any malady, much can be accomplished as has been shown, in the prevention and treatment of yellow fever, malaria, smallpox, rickets, beriberi, and many other diseases, the causes of which have been determined by the faithful and untiring efforts of a large army of medical and dental scientists who are working long hours and many times in comparative obscurity and with small pay, that the blessing of health and a longer life may come to their fellowmen. We owe them a great debt.

There are certain maladies the true cause of which has never been proved, which are controlled and alleviated by studying the pattern of the disease and the environment in which it operates to best advantage, and then fighting it at these levels.

Such is true of dental decay, or caries. The specific cause has never been fully ascertained. It seems rather that there are many contributing factors. Great progress has been made, and where fifty years ago the loss of the teeth, and their replacement with dentures, at a comparatively early age was considered inevitable, now with an application of the discoveries of dental science in the preventive and restorative fields we can with considerable assurance promise people the use of their teeth during a major portion of their lives.

There is very little doubt that the exciting cause of dental caries is local-- in the mouth. However, it is believed with equal certainty by many of the dental profession that there is a systemic background which promotes or inhibits the onset of the trouble.

The histological formation of the dentine and enamel of a tooth is a network of fine white fibres around each of which is deposited a mass of calcium in the form of calcium phosphate along

with some protein and magnesium. These substances are found about the white fibres in much the same manner as old-fashioned "rock candy," where the sugar was crystallized around a piece of string. These prismatic layers of calcium phosphate, which make up the body of the tooth, have microscopic canals running from the enamel through the dentine to the pulp (nerve); and it has been shown that there is some kind of lymphatic circulation in the enamel and dentine. The entire mass of tooth structure may be quite dense, in which case the teeth are rarely sensitive, and they seem to resist decay better; at other times they seem to be chalky and porous and very sensitive.

Calcium is an important element not only in bone and tooth formation but also in the nervous system and blood balance. The calcium in the blood is constant regardless of the deficiency in other parts of the body. This seems to show that certain bodily functions will receive the necessary minerals at the expense of other parts. The bones and teeth have the largest amounts of minerals, and hence may be considered as somewhat of a reservoir. Dr. Dorothy Radusch, writing in a national dental journal, says: "The average diet without beverage-milk will furnish not over one-third the daily calcium needed. If it is not supplied by the food, the calcium necessary for daily utilization by the body must be taken from the bones. It has been demonstrated that 50 per cent of the minerals may have been withdrawn from the bone before changes are visible roentgenographically (by X-ray)."—*Journal of Periodontology*, July, 1946. A tooth thus weakened and made more porous would be sensitive to cold air and would more easily and quickly be dissolved by acids attacking the enamel surface. Therefore, although diet alone cannot be depended upon to preserve the teeth, a balanced plan of giving the body an abundance of minerals, vitamins, and necessary calories gives nature a strong fighting machine to ward off attacks of enemy germs.

Southern Asia possesses a very large number of cattle, but they produce a very small quantity of milk. Milk is a necessary article of diet in order to build strong teeth.

Photo by U.S.I.S.

An abundant, protective diet strengthens not only the teeth but every other organ of the body. Such a daily intake should include:

| | |
|---|---|
| Milk | 2-4 glasses |
| Eggs | 1-2 |
| Butter or vegetable margarine, fortified | 1 tablespoonful |
| Vegetables | 3 servings, including one green leafy one |
| Protein-rich food | 1 serving |
| Potato | 1 serving |
| Whole-grain bread or cereal (unrefined) | 2 servings |
| Fruits, one raw | 2 servings |
| Cod-liver oil | 2 teaspoonfuls or equivalent if child is under 14 years. |

Where this diet was faithfully adhered to year after year in a controlled group, the average decrease in new cavities in teeth for all ages was 56 per cent. (Drs. Howe, White, and Elliott, *Journal of the American Dental Association*, January, 1942.) It will be noted that this diet, which may be supplemented in quantity according to the need has an absence of all refined carbohydrates and sugars. This brings us to the local cause and control of dental caries.

It seems to be agreed generally that dental decay must be caused by an acid, since it begins with the dissolving of the basic compound of minerals making up the enamel. In practically all mouths we find certain acid-forming bacteria which thrive on refined carbohydrates and sugars. Such foods as cakes, pies, pastry, cooked cereal, white bread, preserved fruit, soft drinks, ice cream, and sweets, when mixed with saliva containing

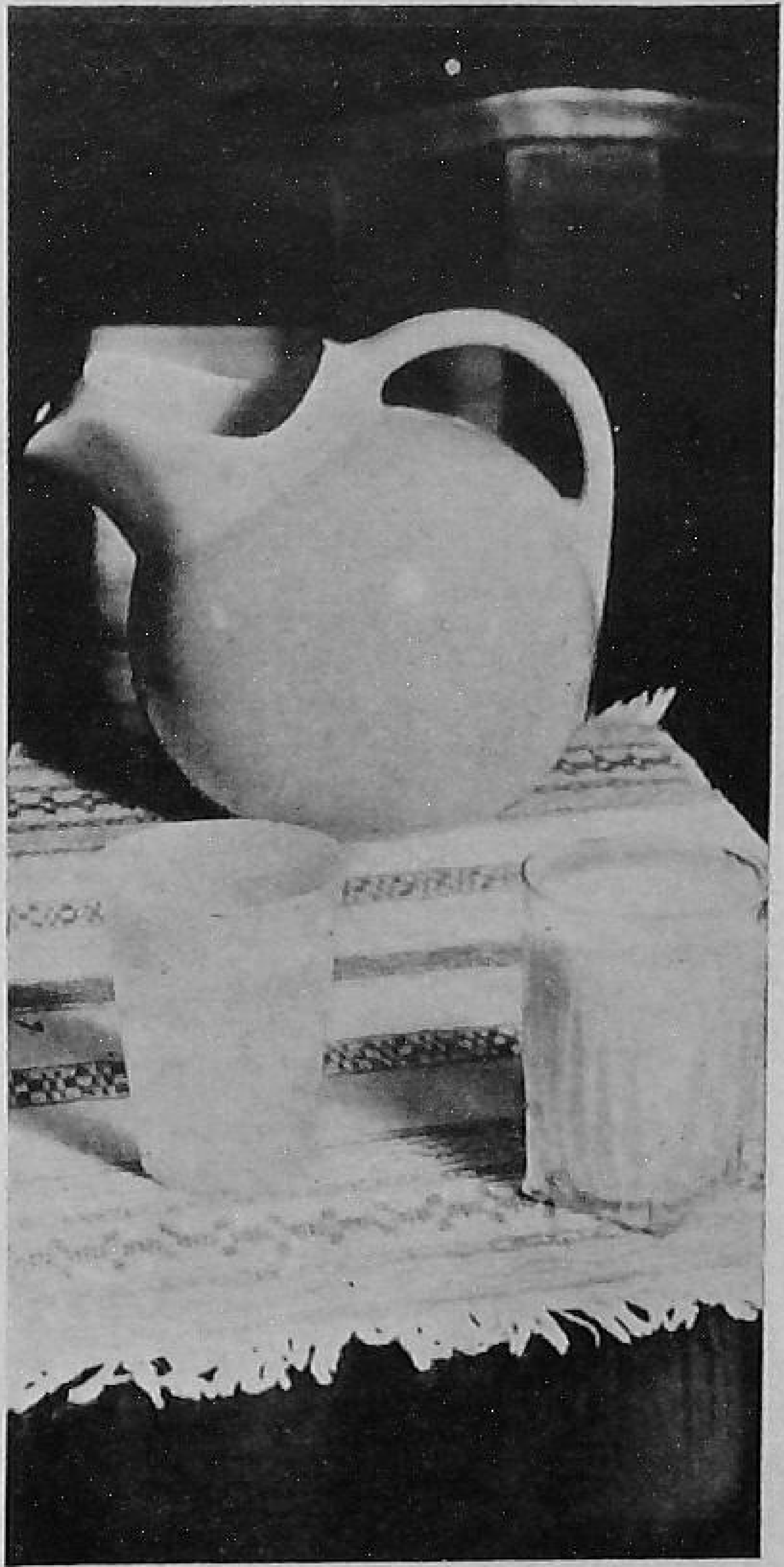


Photo by L. J. Larson

A glass of milk is healthful and refreshing.

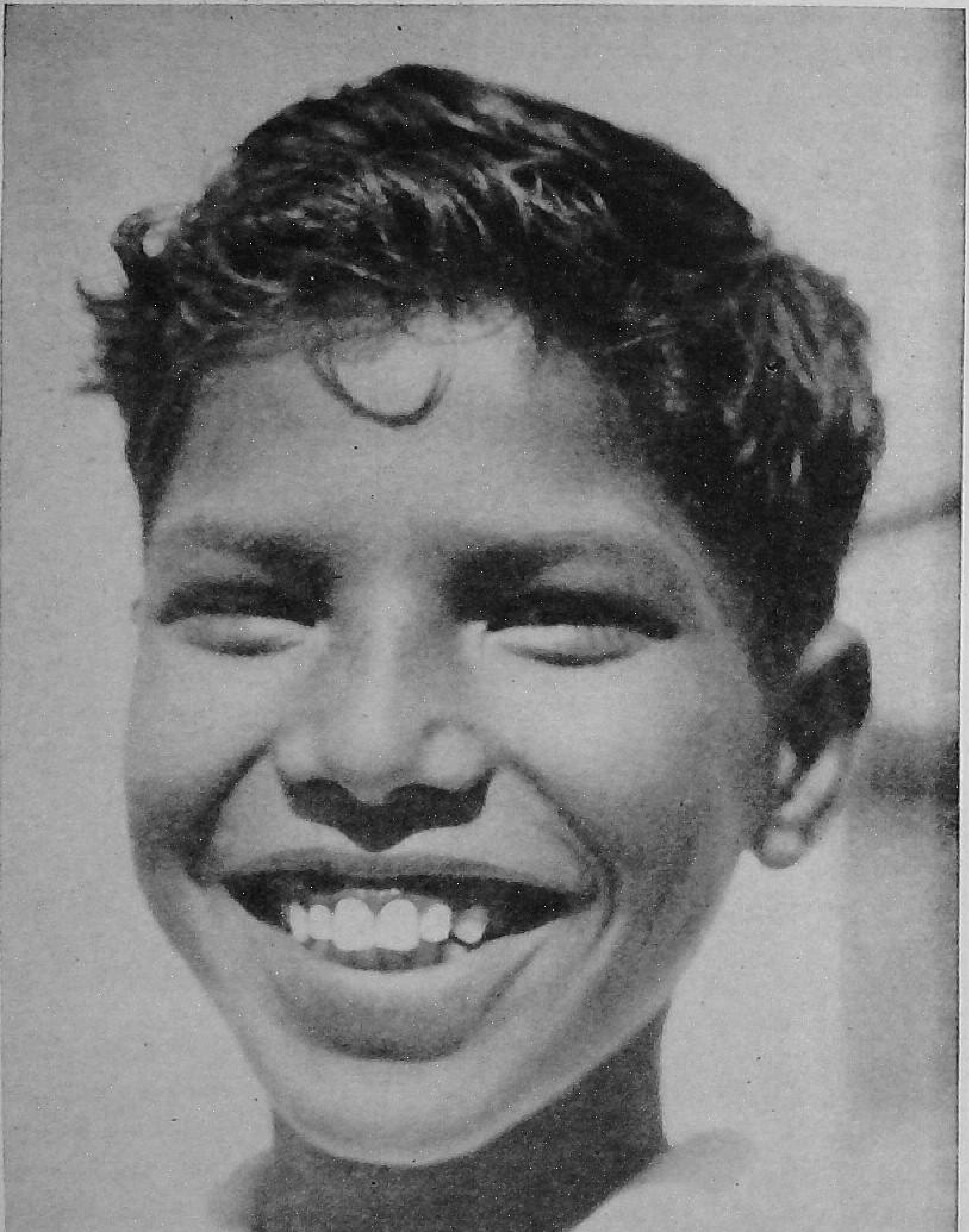


Photo by H. R. Ferger

Take care of your teeth; they are valuable.

germs of lactobacillus or bacillus acidophilus, will within two to five minutes produce an acid strong enough to decalcify enamel. This acid will be present in the mouth for at least thirty minutes after each intake of such food. If a sweet is sucked in the mouth for two hours, this acid may be maintained for the entire period. If there is an enforced absence of the acid as a result of elimination of refined carbohydrates and sugars, there is a corresponding decrease in the incidence of caries.

It will be noticed that all criticism of carbohydrates as dangerous acid formers in the mouth is said only of the refined products, and by this is meant such common articles as white flour (maida), polished rice, and many of the cereals. Nature has placed in the natural grains, such as wheat, rice, oats, barley, and others, a buffer which resists the efforts of the lactobacillus and the bacillus acidophilus to break them down into harmful acids. Hence, we may obtain all necessary carbohydrates without danger to the teeth if we use the whole grain in its natural state.

The frequency of eating refined carbohydrates and sugars also enters the picture. During the last war 100,000 soldiers in an army centre were asked how often they ate refined carbohydrates and sugars. Some said once a day; others, two, three, four, or five times; and some, all day. The examination of their teeth showed that the tooth decay was most prolific in persons eating sweets most frequently. This is to be expected, since they kept decalcifying acid present in the mouth most of the time.

There are also periods of susceptibility owing to physical stress during sickness, pregnancy, and growth periods. It is especially necessary to guard the diet during these times.

There are foods known as detergents, which combat this acid, among which are the citrus fruits, in fact, all fresh fruits and fresh salads. If the citrus fruits, normally taken at the beginning of breakfast, and the salad eaten before the entree at dinner, could be taken at the close of the meal and fresh fruits used for desserts, it would work favourably in the control of dental caries by sweeping the oral bacteria off the teeth and out of the mouth into the gastrointestinal tract.

The last factor in the control of caries is interference with the ability of the acid-forming bacteria to utilize the carbohydrates and sugars in the forming of dangerous acids. There are several such agents, among which are ammonia compounds and fluorine. Probably the most helpful one is the use of fluorine before eruption of the teeth, between the ages of three and fourteen, and also its application locally on the tooth surface about four times a year after the teeth

are cleaned, using a 2 per cent aqueous solution of sodium fluoride. It should always be applied by the dentist, and some very beneficial effects have been noticed, some reporting a drop of 40 to 60 per cent in recurring decay. The use of fluorine before the teeth erupt would of necessity be in the drinking water supply, where one part of fluorine in a million parts of drinking water produces a marked benefit.

With all these efforts, we must never discount the old tried and true programme of mouth cleanliness which is made up of a careful and faithful maintenance of proper tooth brushing and gum massage, the filling of all cavities, and the removing of all irritants such as ill-fitting crowns, bridges, and overhanging margins of fillings.

In closing, let this well-known principle be stated: "A merry heart doeth good like a medicine." Worry is a depressant to normal functions, and hence lowers resistance to all forms of disease. Try to be cheerful and optimistic even though the world outlook may seem dark. Remember that things will never get out of God's control, for "above the distractions of the earth He sits enthroned; all things are open to His divine survey; and from His great and calm eternity He orders that which His providence sees best."

All fresh fruits and fresh salads help to combat the acid which produces tooth decay.

Photo by L. J. Larson

# How to Avoid Constipation

AS LONG as nature is allowed to handle a job alone, we can rest assured that it will be well done; but, when we start meddling with the established routine of automatic body functioning, we usually wind up by calling a specialist. Take that swing through the digestive tract, for instance. Nature can do a good piece of work from throat to rectum. You see, it is only at the two ends of this system that the human intellect or lack of it can enter into the picture. The in-between is all automatic. It runs itself.

Constipation is a major human woe; and, like 99.9 per cent of all our griefs, it is self-inflicted. We have little to blame on our forebears for this unpleasantness, unless it be that they have passed on to us a touchy nervous system, which can tie up anybody's intestinal tract. Usually, however, it is our own dictatorial action that upsets nature's best efforts.

Think back over the years and recall the times that you have refused to obey the signal telling you to hasten to the stool. Maybe you were in an important conference, a party, or in the classroom —mighty inconvenient spots for such an alarm—nevertheless an important call was ignored. Well, the nerves delegated to the job of ringing the bell when the fæcal refuse reaches a certain spot in its descent, will, like your conscience, eventually become hardened by repeated rebuffs, and refuse to notify headquarters of the state of affairs. This is Number One cause of constipation—failure to answer nature's call.

It is only when the rectum fills from the section of colon called the sigmoid, just above, that the urge to defecate develops. So, when the rectum fills and is refused the opportunity to evacuate its contents there is nothing to do but for the fæcal mass to remain there and dry out. That is, moisture is gradually

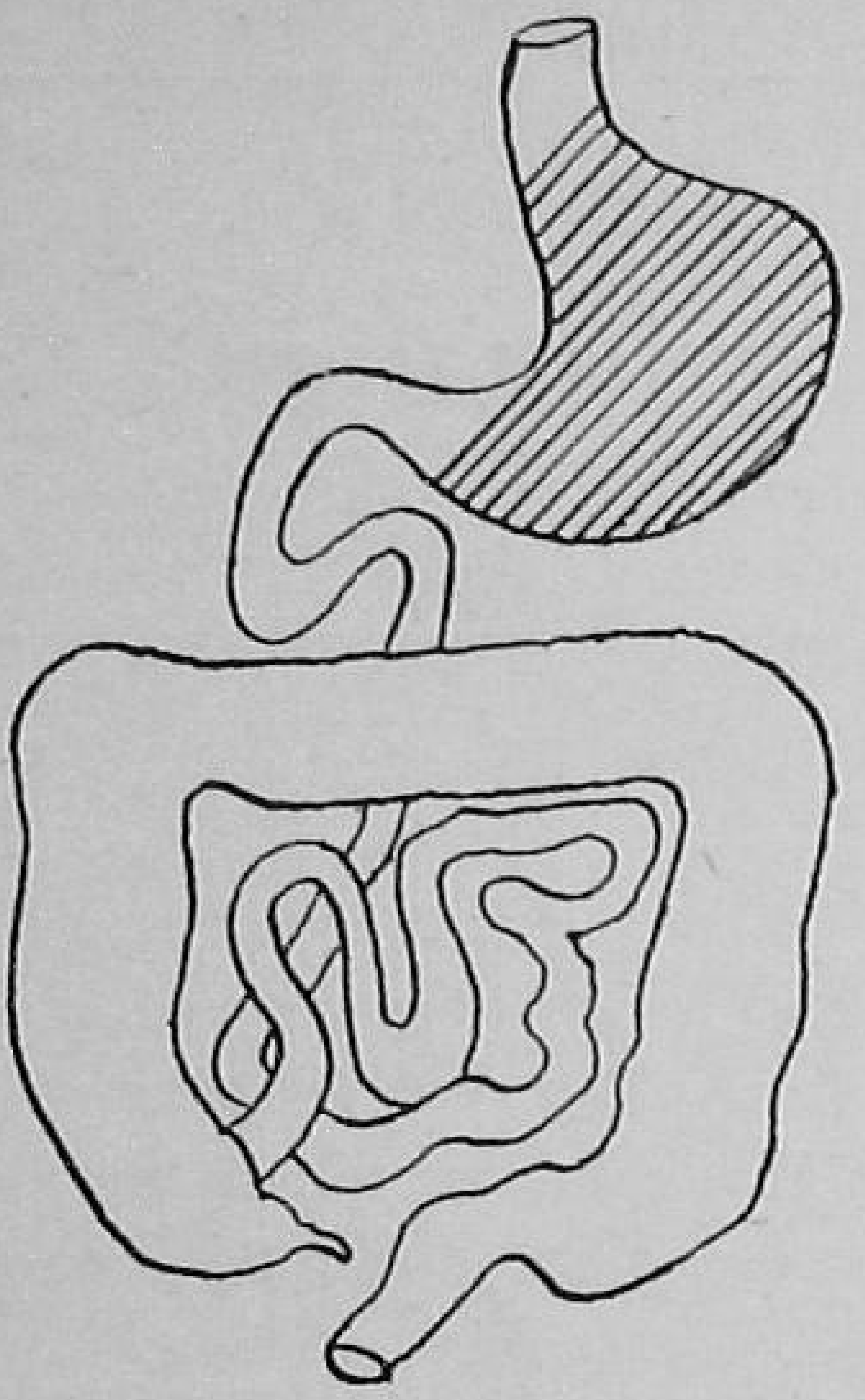


Fig. 1. The alimentary canal showing breakfast in the stomach.

absorbed from the mass. It gets drier and harder and packs more firmly. Then we begin with enemas and cathartics, introducing a second phase of the constipation problem and another bad habit.

Enemas may succeed in clearing out the rectum, but they also discourage the rectal mechanism in the handling of its evacuation job. Just like some folk on relief—the mechanism prefers charity rather than to work for its keep. Cathartics irritate the intestinal tract. In fact, most of them accomplish their task through processes that injure the living membrane, particularly in the large bowel. And thus we provide one potent cause of inflammation of the colon—colitis. The mucous membrane of the colon, raked by phenolphthalein, cascara, and other irritating drugs, finally gets tender, sore, and pours out quantities of mucus in an effort to protect itself. "Colonics" and "high enemas" have a similar effect. All this leads to spasms here and there in the muscles of the colon, which not only hurt and cause stomach-ache and backache, but distinctly further the cause of constipation. And so—more cathartics—more irritation—more spasms—more constipation—m o r e cathartics—a vicious cycle.

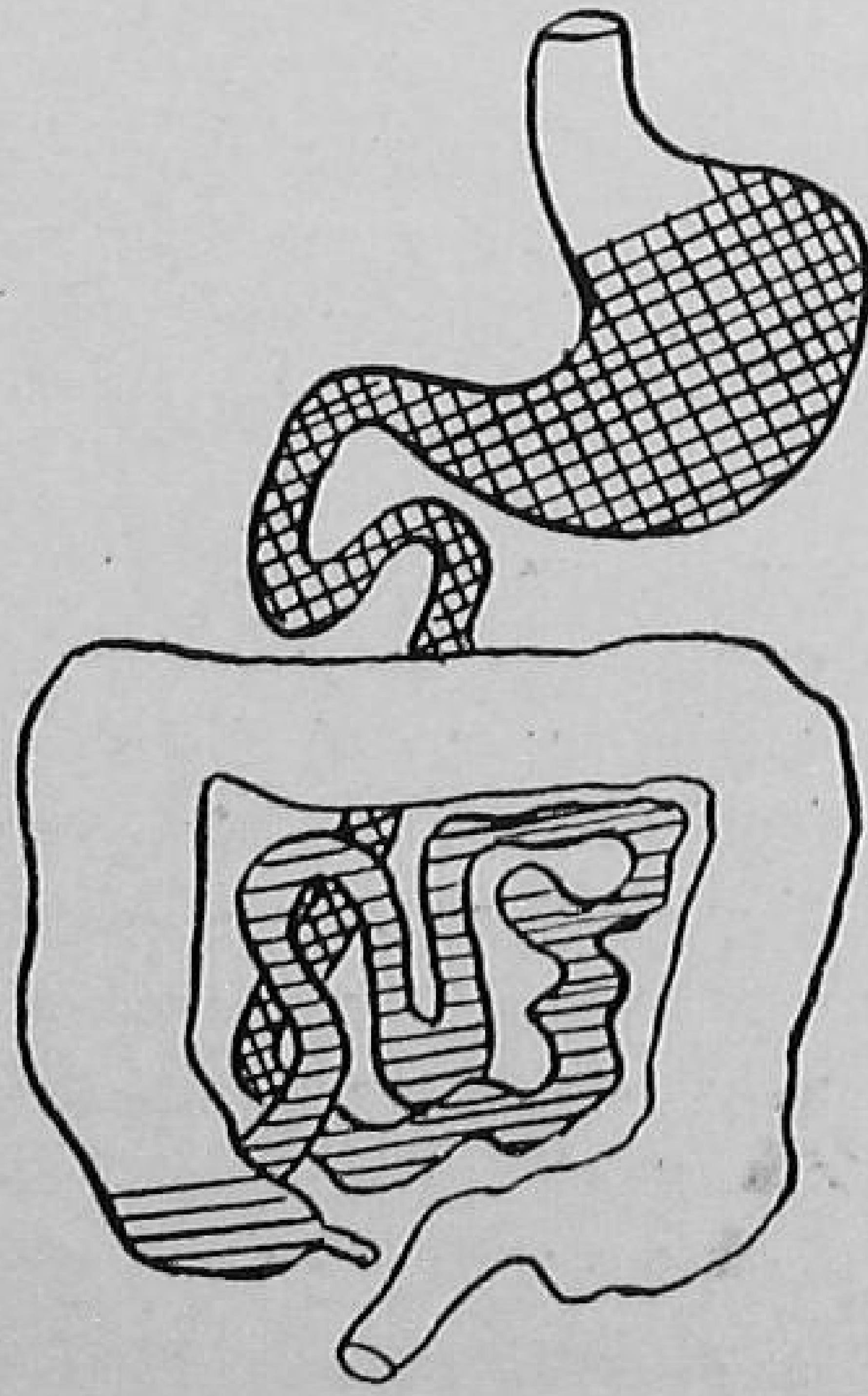


Fig. 2. The alimentary canal showing breakfast and lunch.

Now the use of cathartics and enemas commonly becomes habitual because of the nerves alone. The colon is somewhat of a barometer of nervous things in general, and responds to tense times by either a diarrhœa or a tie-up, usually the latter. Anxiety, worry, or fear will produce a spasm in the colon. Thus the passage of waste is slowed, too much time is given for the absorption of moisture, and the material becomes difficult to move. We call it spastic constipation.

Another, probably minor, cause of constipation is deficient residue. The idea of bulk in the diet is so universally preached today that it is only now and then that we find a table without spinach, lettuce, carrots, or some other food that provides a large amount of "roughage." Of course, the logic of it is simply the mechanical necessity of having enough unabsorbable stuff in the intestinal tract to give it something to work on—otherwise it *won't work.*

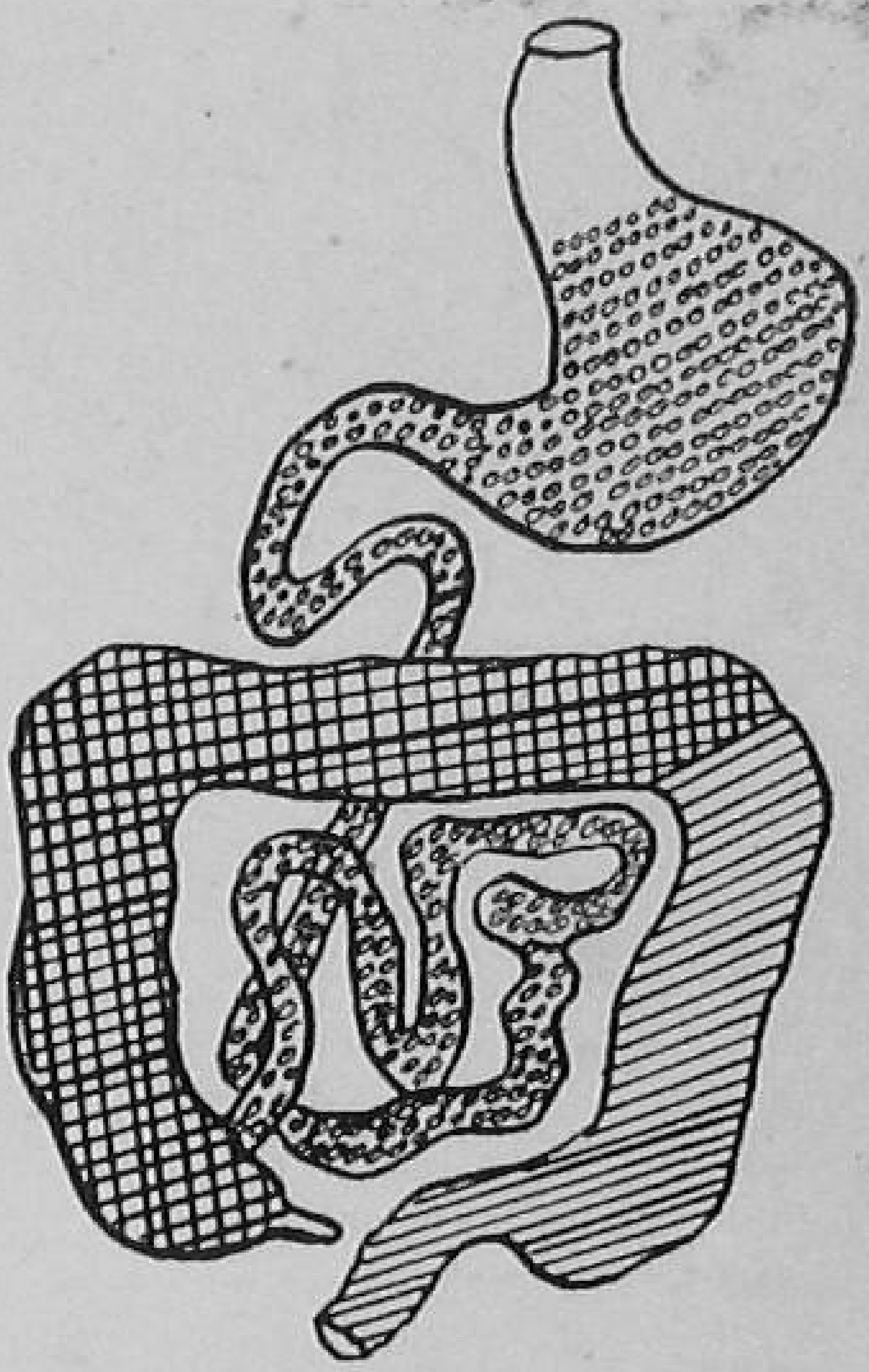


**Fig. 3. The alimentary canal showing breakfast, lunch and dinner.**

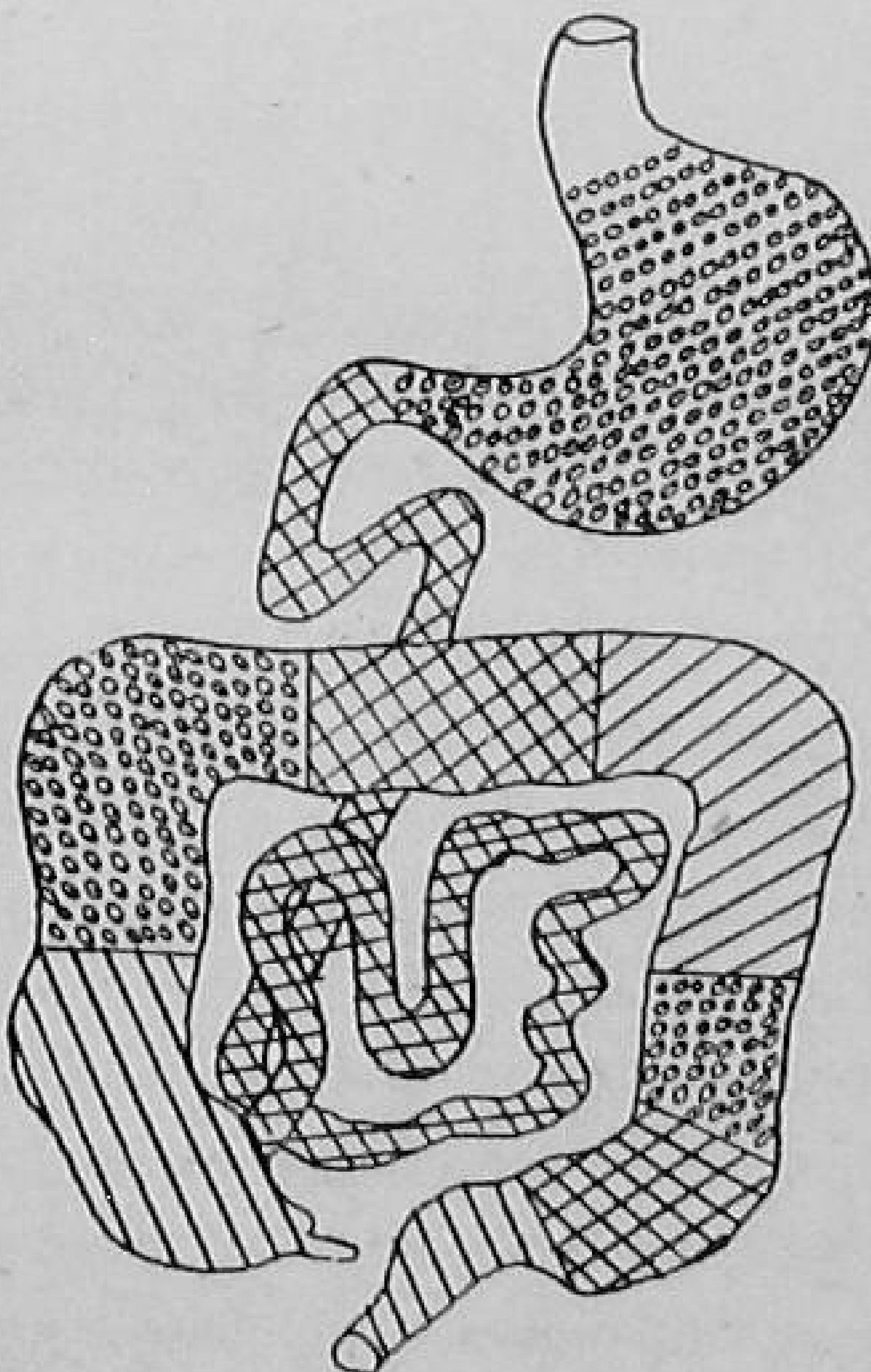


**Fig. 4. The alimentary canal showing three days' meals and illustrating the necessity for regularity of bowel movement to avoid constipation.**

Sometimes, however, we find a nervous colon that cannot and will not tolerate rough bulk like celery, cabbage, cauliflower, or bran. This sort of stuff is definitely scratchy, and in an irritable colon stirs up a reaction about like a nail in a shoe. These "spastic" folk have to tread lightly in the use of rough bulk,

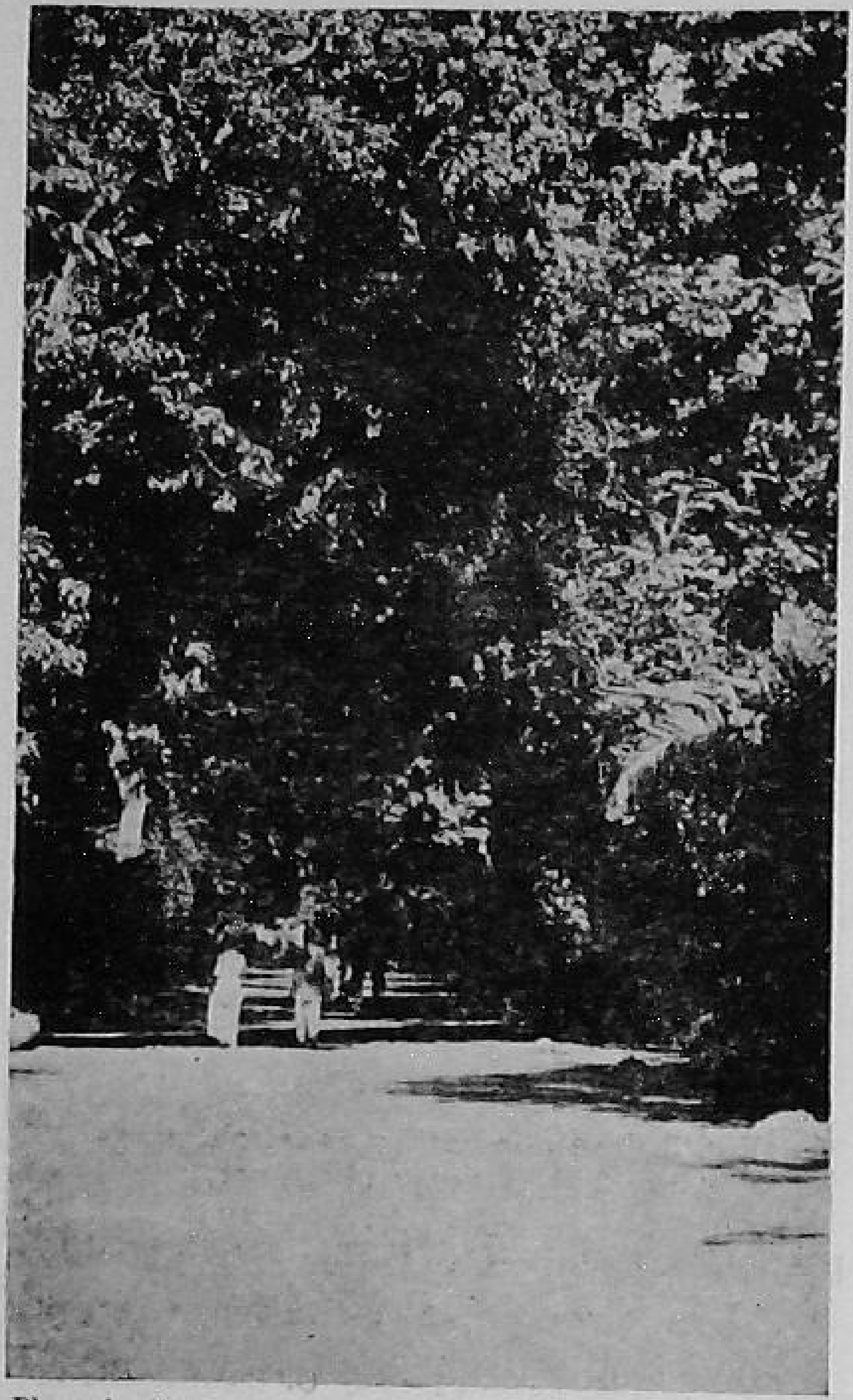


Photo by L. J. Larson

**A good, brisk walk in the fresh air is an aid in avoiding constipation.**

otherwise their constipation will get decidedly worse. They need bulk all right, but smooth bulk. They must avoid cucumbers, radishes, celery, cabbage, cauliflower, and most certainly bran and perhaps coarse bread.

Anything in the rectal area that irritates will defeat nature's best effort to take care of things. Hæmorrhoids and fissures cause a tightening of the controlling sphincter, and simultaneously, through an interesting physiological mechanism, a diminution in the muscle power needed to effect evacuation. This type of constipation naturally can never be cured by enemas, "colonics," cathartics, bulk foods, or mineral oil.

The abuse suffered by the human digestive tract is beyond words. The nearer to the vegetative stage the intellect may be, the less the evidence of interference with the automatic parts of our make-up, the less the worry of constipation. You never hear of animals calling for an enema can. To begin with, they apparently use some judgment (or is it instinct) in the selection of what goes in at the mouth. Humans must be clubbed into any semblance of reason in matters of diet. Animals are not tied to social forms, show no inhibitions in responding to the call of nature, and require no bathroom facilities. Furthermore they have no worries over an income tax, the styles of clothing, or the size of the family—nothing, in fact, to keep the emotions in a chronic uproar and to tie the intestine into knots that hurt and that prevent normal function. And so the proposition of normal bowel action resolves itself into the matter of learning how to eat, how to control emotions, and how to cooperate with a body that will carry on decently and in order if we use a little intelligence in the art of living.

# How to Avoid Kidney Trouble

IT IS fortunate that there are two kidneys in the human body, for sometimes only one may be affected by disease. There are, however, a number of conditions which damage both kidneys equally.

A routine urinalysis should be done once a year. This is comparatively simple and inexpensive and will usually show some abnormality if there is kidney or bladder disease. Such an analysis may also show indications of diseases which are not primary in the kidney or bladder. Whenever a person is ill, a urinalysis is one of the first tests which should be made, for there is a very great possibility that it is his kidneys.

Infection and stone formation are two of the many diseases which may occur in the kidneys. Some of these diseases require surgical treatment, but the majority are treated medically. They cannot all be diagnosed in the very earliest stages by an analysis of the urine, but a sufficient number can be detected in this way to make urinalysis well worth while as a routine yearly procedure and a *must* whenever a person is not feeling well.

"An ounce of prevention is worth a pound of cure," can truly be applied to kidney disease. Healthful living will go far toward keeping the kidneys fit, and on the other hand disregarding the laws of health may initiate trouble that leads to disaster.

Prolonged fatigue, both mental and physical, is one of the most common causes of high blood pressure. This in turn produces hardening of the arteries in the kidneys, so that these organs do not function as they should. The final outcome of this train of events may not be evident for several years, but when men or women continually work beyond their strength, either mentally or physically, a breakdown is sure to follow. Damage to the kidneys is a comparatively late result of high blood pressure, and the symptoms of headache, dizzi-

ness, sleeplessness, and extreme irritability are a warning that should be heeded.

Because it is the *continued* fatigue that is harmful, it is very important for the person who is under stress and strain to know how to relax. When you arrive at home at night, even though it is late, you must train yourself to untie each muscle of the body and to clear your mind of day-time problems and anxieties. When you get into bed, concentrate on relaxing, and see how it helps you to forget the things that have been nagging you all day. First, relax the muscles on the top of your head, then those of the forehead, then of the eyes, the cheeks, the mouth, and continue thinking about relaxing each muscle all the way down through the body. When you have reached the toes, start at the head again and repeat the process. After you have done this several times, you will probably be entirely relaxed and already half asleep. Such a sleep will be restful.

The kidneys eliminate many of the waste products from the body. When the blood passes through the tiny vessels in the kidney, the living cells that line these vessels select from the blood the material that is not necessary for the proper functioning of the body. These waste products together with the proper amount of water, pass through the cells into the minute tubes of the kidney and are eliminated in the urine. This selective action is a very remarkable phenomenon, and cannot be explained by any physical laws that are known. About 60 per cent of the fluid taken into the body is eliminated through the kidneys, and the remainder through the skin, lungs, and intestinal tract. The quantity of water excreted by the kidneys is about the same as the quantity of fluid taken into the body. The amount lost through the skin, lungs, and intestinal tract is practically the same as the amount of liquid contained in the food eaten. If the kidneys do not receive enough fluid their efficiency is reduced, and the waste products remain in the body, causing uremic poisoning.

To keep the kidneys in good working order, it is important to drink a certain amount of water each day—the amount varying considerably in different persons and different climates and with different activities. Infants need more fluid than old people, for the latter do not eliminate as much through the skin and lungs as do infants and young people. A person who is doing hard work on a hot day needs a large quantity of fluids—even as much as ten quarts a day in rare instances. If he is perspiring a great deal, a little salt added to the water will make up for the loss of salt through the skin. During cold weather, and especially if the individual is not active, one quart of water or other liquids, in addition to

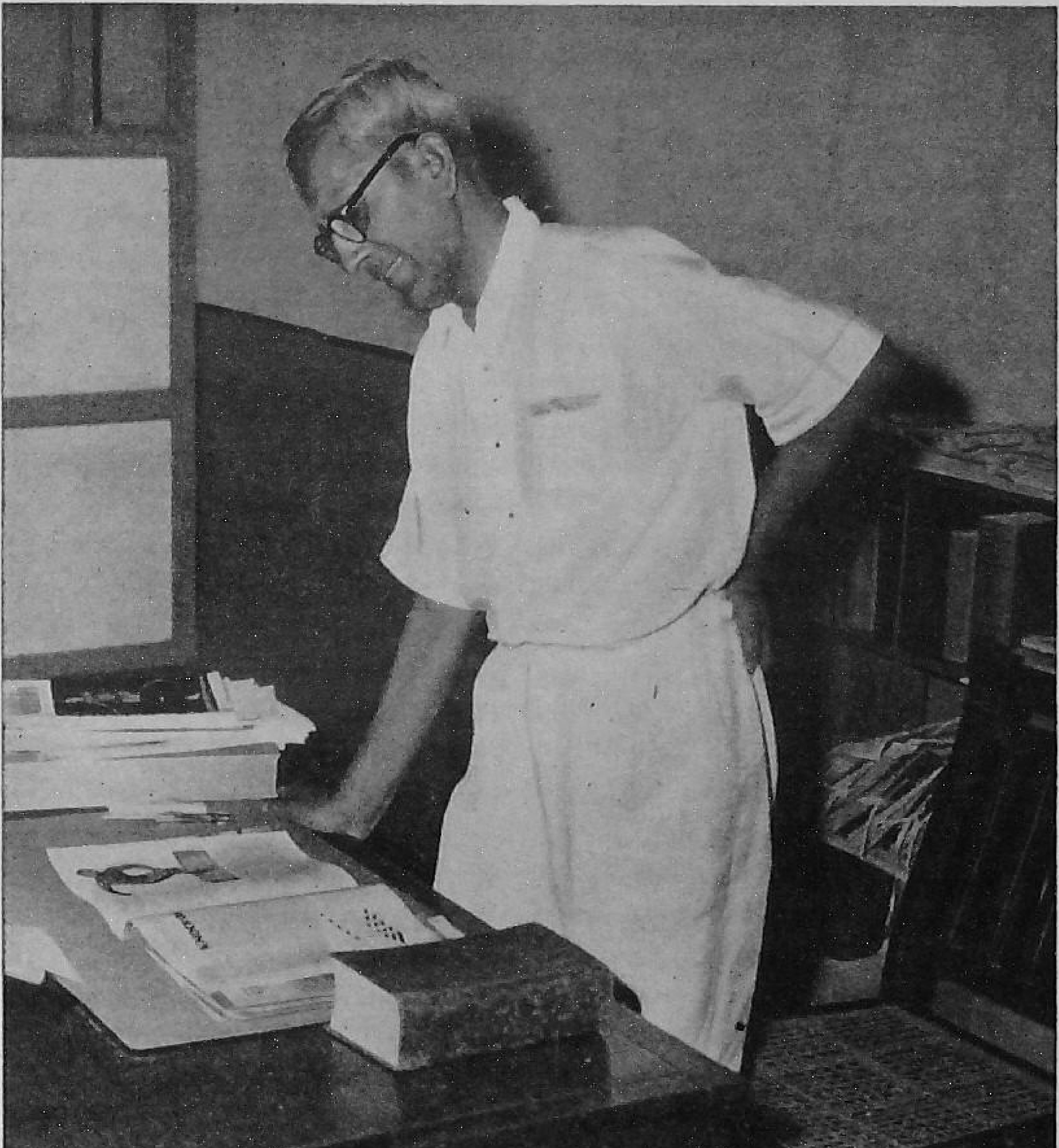


Photo by L. J. Larson

"An ounce of prevention is worth a pound of cure." This can truly be said of kidney disease.

those obtained in the food, is sufficient. When he takes less, the urine remains too highly concentrated, and the tubes inside the kidneys become irritated. If this condition is allowed to go on over a long period of time, it may lead to a breakdown of the kidneys, to kidney stones, and to infection in the kidneys. On the other hand, it is not wise to drink an excessive amount of water, for in some diseases, the body may not be able to properly handle the increased fluid intake.

Frequent urination is sometimes due to excessive fluid intake. It is abnormal for a person to pass urine more than twice during the night. When the arteries of the kidneys become somewhat hardened, there is a tendency for the urine excretion to be more profuse at night, resulting in excessive frequency of urination. This can be remedied in some cases by reducing the fluid intake after 4 p.m.

Frequent urination accompanied by a burning sensation when the urine is passed, is usually due to an inflammation in the bladder. Infection in the bladder or kidneys, stone or tumour in the bladder or ulceration may cause the inflammation. Sometimes insufficient fluid intake, holding the urine too long after the desire to void occurs, or becoming chilled, will cause inflammation and result in frequency and burning on urination. A urine which is too acid or too alkaline is irritating to the mucous membrane lining of the bladder, and sometimes causes burning and frequency. It is a common belief that the most frequent cause of burning on urination is a too-acid system. This is not true, for there are many other causes for this symptom, and, in fact, a hyper-alkaline condition of the urine may cause burning as often as too much acid.

The urine is normally slightly acid, and a person's diet is the most important factor which controls the acid-alkaline balance of the urine. An over-alkaline system is helpful in certain kidney disturbances, but too much alkaline food in the diet, continued over a long period of time, is harmful and may cause kidney stones or urinary infection. The most highly alkaline foods are the citrus foods. All fruits, with the exception of a few such as prunes and cranberries, are alkaline in reaction. Fruits are, of course, healthful foods and should not be discarded because they are alkaline; but on the other hand, they should not be taken in excess to the exclusion of the acid foods. A balanced diet is best for the proper functioning of the body as a whole, and especially for the kidneys.

It is thought by many persons that proteins are hard on the kidneys. This is true only if the proteins are taken in excess. In fact, too little of this basic

Photo by L. J. Larson

**Beverages such as tea and coffee stimulate kidney activity and may eventually lead to serious trouble. To have healthy kidneys, drink eight to ten glasses of water daily.**

food will result in swelling of the kidneys and poor function. Many men and women who were prisoners of war and in concentration camps during the past war were fed diets deficient in proteins. They lost all ambition and initiative, their legs and feet became swollen, and the mechanism of body resistance to disease became so impaired that many became ill and died. Even when the kidneys have been weakened by disease, proteins are called for, and diseases in which large amounts of proteins are eliminated in the urine sometimes demand more than the average amount of protein in the diet in order to replace loss through the kidneys.

The dietary faddist who excludes all proteins, such as milk, eggs, beans, and nut foods, from his diet is very likely to be in a partially starved state because of an insufficiency of proteins for proper functioning of the body. It is not always necessary to eat meat to supply enough protein, for there are vegetable proteins which are usually available and which

are satisfactory. Remember that the moderate use of proteins in a normally proportioned meal is one way of preventing kidney disease.

A deficiency of vitamins in the diet is sometimes a factor in producing kidney disease, especially the formation of stones. It is well known that urinary stones occur more frequently in some parts of the world than others, notably in the north-eastern part of India. In these places there is a lack of vitamin A in the food, the climate is warm, and there is considerable alkali in the water. A few of the foods which are rich in vitamin A are as follows: All the yellow vegetables, such as pumpkin and carrots; the green leafy vegetables such as lettuce, romaine, spinach, escarole, Brussels sprouts, and broccoli; tomatoes, apricots, butter, cream, milk, egg yolk, and cod liver oil. Although plenty of water and vitamin A are not certain insurance against stones, they are important items in the prevention of this trouble.

Deficiency of vitamin B may result in certain types of Bright's disease. This vitamin is found in wheat germ, dried yeast, whole cereals, and breads, green leafy vegetables, avocado, and malted milk. The damage which a deficiency in vitamin B causes to the kidney may be permanent, even though the prescribed amount of the vitamin is taken later. It is well, in planning the daily menu, to include generous amounts of foods containing these vitamins. Sufficient minerals are usually provided by these same foods.

Alcohol is sometimes a cause of kidney disease. This is no mere fancy. What happens is that the part of the kidney which attends to the work of eliminating the poisons becomes hardened, as a result of constant irritation, and ceases to function, which causes uremic poisoning. Persons on a tension buoy themselves up by drinking many cups of tea or coffee. These beverages stimulate kidney secretion, and if drunk to excess when overwork and over-worry have already placed a strain on the kidneys, they may lead to eventual serious trouble. It is not unusual to sprinkle the food liberally with dashes of salt and pepper. Salt is normally present in body fluids, and a certain amount is required. Over-doses, however, cause swelling and other disturbances of the kidneys, and in some kidney diseases its use is markedly restricted. Pepper should be avoided, for it is a kidney irritant.

There is much to live for and to be well for. No one can enjoy life to the fullest without good health. It is worth while to have periodic examinations, to learn to relax, and to eat properly. Although disease cannot be entirely avoided by this programme, it will help to keep you healthy.

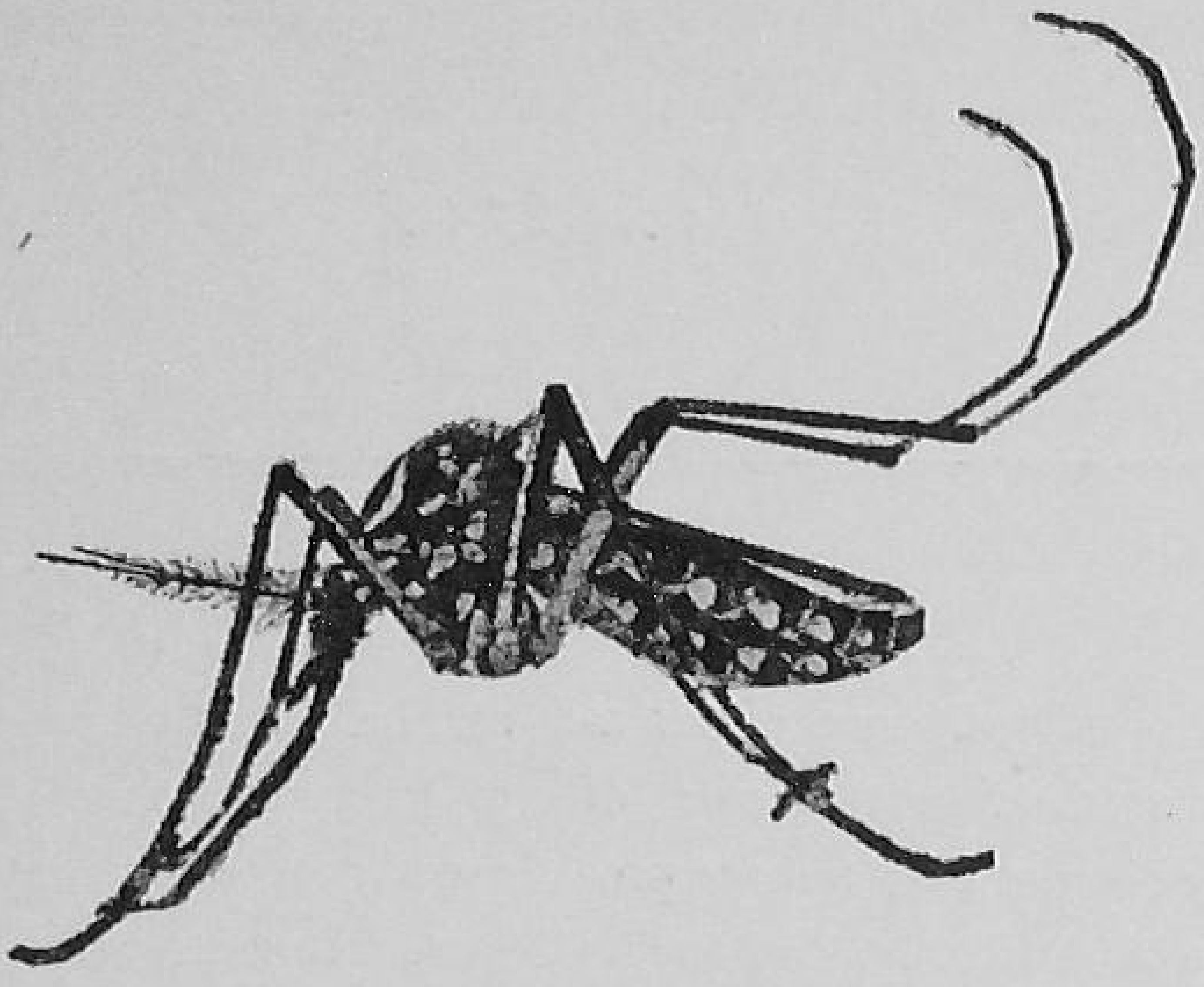
# *Malaria*

THE profound influence of malaria as a dominant factor of human existence over a large proportion of the world's surface can hardly be exaggerated. This disease has probably killed more human beings than all the wars which have devastated the earth combined. This at first sight may appear to be an extreme statement to make about a disease whose manifestations we see about us every day, and of which comparatively little notice is taken by the general public, who are, however, considerably disturbed by the occurrence of a case of cholera. The reason for this indifference is due partly to the absence of the dramatic element in the case of malaria, and partly to its low case mortality, as compared for instance with that in cholera, smallpox, or plague.

Although, however, the case mortality from malaria is probably less than 1 per cent, it has been estimated that in India alone the disease is directly responsible for more than one million deaths per annum in a normal year, while in years of great epidemics this figure may be greatly exceeded. Apart from this, the lowered resistance of the body resulting from repeated attacks of malaria renders the victims more vulnerable to infection by other diseases such as tuberculosis or pneumonia. In certain instances the ravages of malaria have been so overwhelming that whole tracts of fertile country have been abandoned or remained undeveloped.

## How Malaria Is Transmitted

Malaria is a disease caused by a definite parasite, which is transmitted from man to man through the agency of certain species of mosquitoes. Formerly it was thought to be due to evil emanations rising from swamps (the old miasmic theory), thus giving rise to the terms "paludism" and "malaria," which indicated respectively "swamp fever" and "bad air." Even now this theory



The anopheline, or malaria-carrying mosquito in its typical posture when at rest.

has apparently not been completely abandoned in certain quarters.

The three common human malaria parasites produce three distinct diseases, known as benign tertian, malignant tertian or sub-tertian, and quartan malaria, respectively. They differ very considerably in the effects they produce, and in their appearance under the microscope. In its essential features, however, the life history of each is the same, and in the account here given they will be referred to as "the" malaria parasite.

The malaria parasite is carried from man to man by anopheline mosquitoes only. Certain species of culicine mosquitoes convey yellow fever, dengue, and filariasis, but only anophelines can carry malaria. Furthermore, the malaria parasite is only transmitted in nature by certain species of anophelines, the majority being harmless in this respect. The explanation of this probably lies in the known variations of their habits of life, food preferences and degree of contact with human beings, for most if not all species of anophelines can be infected with malaria parasites under laboratory conditions.

Only female anophelines are concerned in the transmission of malaria. Male mosquitoes cannot obtain a blood meal under natural conditions, because their proboscis is not able to pierce the skin. Their normal diet consists chiefly of fruit and vegetable juices.

Anopheline mosquitoes may be distinguished by the fact that (1) they keep the body and proboscis in one line, and at an angle with the surface on which they rest, whereas culicine mosquitoes at rest have a hunched-up appearance, and (2) they usually have spotted wings, while the wings of culicines are almost invariably unspotted. The larvæ of anopheline mosquitoes rest just beneath the surface of the water and parallel with it, while those of culicines hang head downwards.

The malaria parasites which have been introduced into the blood stream by the bite of a mosquito undergo an asexual cycle of development in the red corpuscles. The parasite, at the very first minute, becomes larger and larger until it nearly fills the cell. Then, still within the cell, it splits into a number of small parasites. What is left of the red corpuscle gives way, and the minute new parasites are set free into the blood, where many of them attack other red corpuscles, the process is repeated. The simultaneous liberation of myriads of young parasites into the blood stream coincides with the attack of fever experienced by the patient. The length of time between the bite of the infected mosquito and the first bout of fever (the *incubation period*) varies in individual cases and in the different species of parasite, but is usually not less than ten to fourteen days.

In the stomach of the mosquito, the male and female forms escape from the red blood corpuscles. Union takes place, and the fertilized female parasite assumes an oval form, penetrates the wall of the mosquito's stomach, and comes to rest beneath its outermost layer. It is then known as an oocyst. This increases in size, and in it are formed a number of tiny bodies called sporozoites. The cyst ruptures, and these are liberated into the body cavity of the insect, a number of them making their way into the salivary glands. When the mosquito again takes a blood meal, she injects salivary fluid immediately before she sucks up blood, and thus the sporozoites are introduced into the circulation. It has been demonstrated that if the mosquito's proboscis remains inserted for only fifteen seconds, this may be long enough to effect transmission of the infection. Having reached the blood stream, the sporozoites attach themselves to the red corpuscles and ultimately enter them, developing into forms identical with those already described in the account of the asexual cycle.

An infected mosquito may be able to transmit malaria over as long a period as two months, after which the sporozoites, though still present, are ineffective. The malaria parasite has no ill effect on the mosquito which harbours it.

PROTECTION AGAINST MOSQUITO BITES

(1) *A mosquito net* should always be used in a malarious locality. The best pattern is the rectangular net, with no opening in it for the purpose of entering, and it should be hung inside the poles and tucked continuously all round under the mattress.

(2) *Mosquito boots* are useful to protect the ankles in the evening. They may be made either of soft leather or of canvas. Wellington boots may also be used for this purpose. For ladies, the best protection is an ankle-length garment and mosquito boots.

(3) *Veils* and *gloves* are sometimes used to protect men on guard duties at night.

(4) *Repellents* or *culicifuges*. The common drawback of all these is that after a certain length of time their effect wears off; but they have their value when men have to be out at night for limited periods in malarious situations, or on railways. Many different preparations have been recommended for this purpose, one of the most useful being a pomade of the following composition: oil of citronella, ½ oz., spirit of camphor, ¼ oz., cedar wood oil, ¼ oz., white petroleum jelly, 2 oz. Joss sticks burnt under the table or bed are useful for keeping mosquitoes away.

(5) *Screening of buildings*. The great value of this method of protection is generally recognized in practically every malarious country in the world. But in spite of the fact that it has been used in some of the barracks of troops in India with excellent results, there is still some objection to the screening of houses on the ground, the objectors asserting that it interferes with ventilation. This is true to some extent if the house has not been constructed for this purpose, and especially if the screening is fitted directly to window frames of rooms. But if the verandahs are screened and the house is suitably constructed, this disability is not felt, particularly if electric fans are provided; while apart altogether from the protection afforded from malaria, the gain in personal comfort by the exclusion of winged insects of all kinds is more than sufficient to compensate for slight reduction in ventilation.

It is essential that the building to be screened should be well-constructed and in good repair, that every aperture in it should be screened, and that doors should fit well and not sag on their hinges. Double doors, with a porch or vestibule at least six feet in length between them, are a great advantage, and all doors should be made to open outwards, to prevent mosquitoes resting on the outer surface of the gauze from entering the building.

The material used may be of galvanized iron, which is cheapest, but this

Photo by L. J. Larson

If a residual spray is not available, a daily use of fly spray will help to exterminate the mosquitoes.

cannot be employed if the building is near the sea, and is also unsuitable if the atmosphere is constantly very humid. Brass, copper, and phosphor bronze last much longer, but are considerably more expensive. The same remark applies to "monel metal," a natural alloy containing nickel and copper, while good results have also been claimed for screening made from aluminium. The essential point about the application of screening is the thoroughness with which it is done, and frequent inspection is necessary, especially where there is extreme variation in humidity between the wet and dry seasons, leading to the development of defects in the wooden framework.

Destruction of Adult Mosquitoes

(1) *By hand.* This is a method to be encouraged, in view of the fact that recently fed and therefore possibly infective mosquitoes may be killed by this means. *Swatters* consisting of a piece of wire gauze fixed to a wooden handle, are effective, and children may be taught to use them.

(2) *Insecticides.* Since the discovery of the new insecticide known as DDT, and its release for popular use in 1942, considerable strides have been made in the attack against malaria. DDT (dichlorodiphenyl-trichloroethane) is a fine, white powder. It is rendered soluble in

kerosene, sylene, toluene, fuel oil, and similar solvents.

DDT is absorbed through the feet of the insects as they rest upon or walk over the sprayed surface. For this reason the objective in spraying is to produce a deposit of DDT on walls, ceilings, floors, and anywhere and everywhere the mosquito can rest. There are several forms of DDT obtainable to meet particular needs. The instructions accompanying the container must be carefully followed.

The most effective measure is the residual spray method. When DDT is sprayed or dusted on walls, ceilings, floors, and other surfaces, it leaves a deposit or residue of tiny crystals. When mosquitoes, cockroaches, fleas, bed bugs and certain other insects walk over or rest on this deposit and obtain a sufficient exposure, they are killed. You will note that this is quite different from the ordinary fly spray.

Oil spray solutions should contain five per cent DDT, as weaker solutions are ineffective as residual sprays. If the solvent used is inflammable, then due precaution must be taken against fire hazards. Some solutions are not inflammable. One application of the residual spray will remain effective for about three months.

### PREPARING FOR THE SPRAY

Before spraying, the following preparations should be made:

a. See there are no fires burning in the house.

b. All varnished furniture should be covered to prevent spotting.

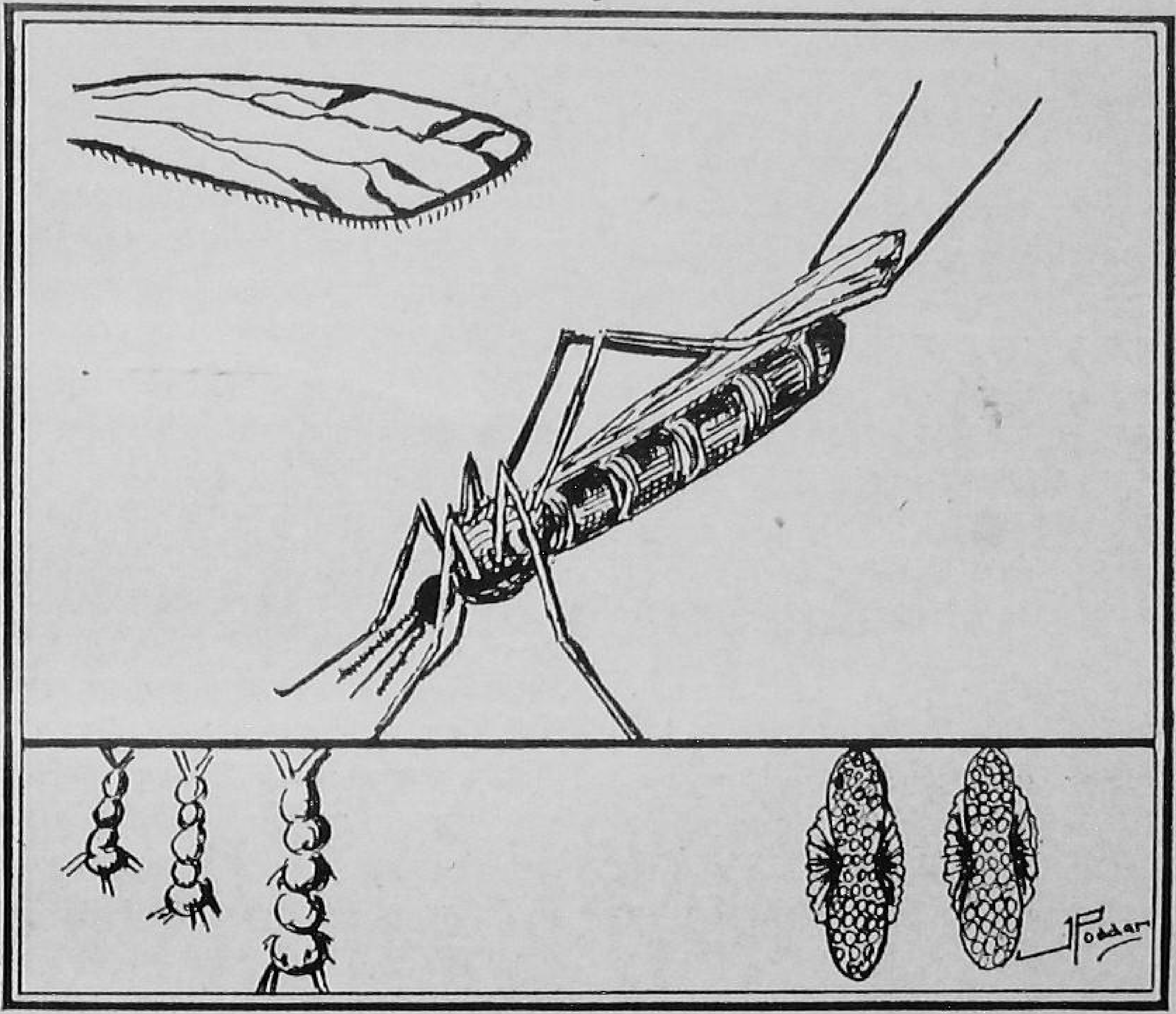
c. Pictures and mirrors should be removed from the walls.

d. Food and dishes should be removed or covered.

e. Varnished floors should be covered to prevent spotting.

Spraying must be done so thoroughly and evenly that all surfaces are covered with the fine residual powder. The liquid evaporates, leaving a fine deposit. This is the effective insecticide. The under surfaces of beds, tables, chairs, and other furniture where mosquitoes may hide during the day must not be overlooked.

(3) *Larvicides.* There are several substances that may be applied to water surfaces for the purpose of destroying mosquito larvæ. Among these are DDT, pyrethrum emulsion, fuel oil, calcium arsenite. Each of these has certain advantages to suit local conditions. However, to succeed in larvæ control it is necessary in addition to using larvicides to also keep the water margins free of vegetation and small floating




This drawing shows the wing of the malaria-carrying mosquito, and the mosquito in its position when about to sting. The larvæ of the anopheline mosquite are shown in the lower left hand corner and the eggs are shown in the lower right hand corner.

material. Malaria control represents an important phase of the struggle for human survival and progress. Nothing short of a continued battle against mosquitoes and their larvæ will bring success.

(4) *Surface-feeding minnows.* Among biological methods may be mentioned the use of larvivorous fish. Their value in natural waters is limited by the fact that unless the aquatic vegetation is first removed, a large proportion of the larvæ are likely to escape destruction. They are, however, useful in the case of ornamental waters of a permanent nature, and have been employed in the wells in Bombay for the past thirty years and more.

More recently they have been used with success in the wells in Bangalore and other cities. It is necessary to re-stock wells at least every six months, as under these conditions fish are likely to eat their own young. There are a number of species of fish in India which feed on mosquito larvæ, but none of these are as efficient for general anti-larval purposes as Gambusia or Fundulus, a top-minnow which was introduced from America some years ago. This is the fish which is employed in the wells in Bombay, Bangalore, and elsewhere.

### USE OF ANTI-MALARIAL DRUGS

Long experience in dealing with malaria has resulted in the conclusion that up to the present there is no drug that can actually cure malaria. The two best drugs are quinine and atebrin. The most that these drugs can do is to control or mitigate the paroxysm or flare-up of the infection. Atebrin and quinine are capable of destroying the sexual forms of the organism and thus control the acuteness of the attack. Of the two medications atebrin has proved to be the most effective.

The body itself must build up a resistance to the infection. This takes several years provided no new re-infection is introduced. During this time there will occur the characteristic attacks which must be controlled by effective short-term treatment with either of these drugs.

For adults, the standard plan of treating an acute attack with atebrin is to give three grains of atebrin together with sodium bicarbonate, fifteen grains every six hours for fever, along with this plenty of water, fruit juices, or other liquids should be taken. This is followed by giving one and a half grains of atebrin three times a day, after meals, for another six days. In a few cases, the treatment needs to be continued for several days longer but using a lower dosage. The uncoated tablets are best as they are more certain to be dissolved after being swallowed. Quinine sulphate is the least expensive of all the drugs used in the treatment of acute malaria. The plan usually recommended for treatment for adults is to give fifteen grains three times a day for two days, followed by ten grains three times a day for five more days. For children, the minimum daily dose would be as follows: Under one year, two and a half grains; one to two years, five grains; three to four years, seven and a half grains; five to six years, ten grains; seven to eight years, twelve and a half grains; nine to ten years, fifteen grains; eleven to twelve years, seventeen and a half grains; thirteen years and over, twenty grains.

# Important Facts about Your Eyes

SIGHT is your most precious possession. Through your eyes you see the stars, recognize your loved ones, distinguish the colours in the rainbow, observe the speeding plane. For vision shows you motion, form, brightness, and colour.

Vision brings you 80 per cent of your knowledge. It enables you to study, to work, to play. And it also permits man to hold his eminent position in the world because he has the most perfect eye nature has designed—one whose vision is keen enough to read fine print.

Safety, activity, and accomplishment go hand in hand with good vision. It is the very cornerstone of human and individual progress. That's why you should guard your eyes well.

Although you may hate to admit it, there comes a tide in the lives of men and women (paraphrasing Shakespeare) that leads to spectacles. Few are exempt. Visual defects creep up, and the only solution to eye-strain, headaches, and other distressing ailments is to visit a specialist in eye troubles. Your health and efficiency depend on it.

As Walter B. Pitkin states: "Human vision begins to decline after the age of forty. . . . About half of our adults are *dimwits*. Seeing little, they do and earn less. . . . Life begins with good vision."

So, if you would conquer in today's business world, you must not only look your best, but see your best.

You should be very thankful for the progress in securing better vision. Back in the gay nineties visual efficiency was just beginning to be recognized as a public need. Little of the professional advice of today was available. You tried on ready-made glasses until you could see better or read better.

Today you don't buy glasses. Instead, you get the services of professionally trained men equipped with precision diagnostic instruments to give you the

utmost in eye comfort and visual efficiency. Glasses, if necessary, are only devices supplementing the eye examination.

Do many people still exist who ignore the necessity for eye examinations, and think only of their eyes in terms of glasses? Yes, unfortunately. According to a recent survey, 4 per cent of adults admitted they bought glasses at stores, off the counter, without examination. Obviously this is the epitome of foolishness. People who buy glasses by the trial-and-error method are assuredly gambling with their sight and health.

The same survey tells us that, although 81 per cent of adults have had their eyes examined at some time or other, only 25 per cent have examinations regularly. Apparently we learn little.

The eye is an extraordinary creation by any standard. It responds to the smallest physical force in the world—light waves. And it is the hardest worked of all your organs. Here's proof. More than 100,000 eye muscular adjustments are made by the average good reader in a half hour's perusal of non-technical material; those of a poor reader may run as high as 300,000. No wonder the eye frequently rebels at the strain put upon it.

The eye and the camera function in almost the same manner. Light enters the eye through the pupil, the size of which the iris regulates according to the light. The rays of light are focused by the lens of the eye, which miraculously changes its shape to focus sharply. The light rays fall on the retina, and the picture is immediately flashed to the brain. The impression we get in the brain is what we call seeing.

Near-sightedness, far-sightedness, and astigmatism, constitute 95 per cent of all eye errors. They are called errors of refraction; that is, some part of the eye is so constructed that the organ cannot focus light rays correctly on the retina.

Near-sightedness results from an eyeball that is relatively too long. The lens of the eye focuses light rays in front of the retina instead of upon it. In far-sightedness the eyeball is too short and the rays come to a focus behind the retina. Astigmatism is usually caused by a malformation of the cornea, and the object seen is blurred or distorted.

Fortunately for the millions who have such errors, pieces of specially made glass can be ground to prescribed curves, forcing light rays to focus properly on the retina.

And now let's discuss briefly the latest in eye knowledge. Several years ago Dartmouth research scientists found a way to measure an eye defect called "aniseikonia"—Greek for "unequal images." Aniseikonia is present when a person looks at an object and the images

Photo by B. Ranganathan

Remember, your eyes require the best of care.

from the two eyes as interpreted by the brain are unequal in either size or shape or both. Symptoms sometimes include headaches, eyestrain, excessive nervousness, undue sensitivity to light, car and train sickness and inability to read over long periods of time—symptoms which are not alleviated by a correction obtained as the result of a routine examination.

To detect and measure aniseikonia, it was necessary to develop a very complicated instrument called the "eikonometer." This instrument in the hands of an examiner, literally reads unequal images formed inside the brain. And to correct the defect, it was also necessary to design a new type of lens to produce equal images in both eyes. These iseikonic lenses are tailor made; that is, each one must be individually designed and ground, and no two are ever alike. They are the most difficult and intricate of all prescription lenses to manufacture.

Just what tools are used by professional men in giving you better vision? Let's describe briefly new types of lenses which play fantastic tricks with visible and invisible light. Polaroid lenses screen out the blinding and dangerously reflected glare so familiar to you who drive cars. If your eyes are sensitive to excess light, your doctor can now prescribe for indoor or outdoor use absorption lenses that admit varying degrees of light, soften glare, and absorb the potentially dangerous invisible ultraviolet (sunburn) and infra-red (heat) rays. And for those of you who love outdoor sports and wish eye protection, special lenses that are highly resistant to flying objects are available.

Cataract operations comprise approximately 25 per cent of eye surgery. This delicate operation consists of extracting the diseased lens of the eye. To compensate for this removal, optical scientists have designed cataract lenses which restore sight. And if you have very subnormal vision, telescopic lenses with tremendous magnifying power can restore some measure of sight.

Recent years have seen the development of new and improved eye-examining instruments which are just as dramatic as the new lenses. Whatever the eye defect, these sensitive, precise instruments speedily and deftly reveal or measure your eye errors with uncanny accuracy.

Some of these instruments assist the oculist in determining your eye errors and, equally important, provide clues to the state of your general health. When your eye doctor picks up his ophthalmoscope and projects its beam of light into the background of your eye, he is searching there for symptoms of eye, brain, blood, and systemic diseases.

Also, when he charts your field of vision—the extent of space seen while your eyes are looking directly ahead—

he is investigating possible diseases of the optic tracts, brain diseases, and other pathological conditions.

It should be emphasized that scientific research is responsible for present eye-examining instruments. A case in point is the phoropter, certainly an optical miracle. This amazing instrument contains only thirty-six lenses, yet these lenses can be combined into 61,060,386,816 different lens combinations, placing tremendous facilities for eye testing at the service of the doctor.

Heretofore, it was necessary to slip by hand different lens combinations into a trial frame until a satisfactory prescription was found. The phoropter now performs the same task in a fraction of the time more conveniently and accurately.

Other developments are similarly dramatic and important. The ophthalmograph records on movie film your reading habits. The metronoscope improves faulty reading, which educators assert is a major cause of school failures. Another instrument is a most ingenious device for exercising weak or lazy eye-muscle co-ordination which may cause cross-eyes, suspension of vision, and faulty depth perception. The adaptometer detects night blindness, which may be caused by a lack of vitamin A. All these, and more, are the triumphant results of the endeavour, through the creation of new instruments, to assist your doctor in making his examination.

Modern glasses, too, have come a long way in the past decade. Not only have they been streamlined, but a wide variety of lens shapes have been designed for different types of faces. Properly selected and fitted glasses do not detract from good looks. Admittedly we do not wear them by choice. But once they have been pronounced necessary, there is no choice—unless we prefer to go through life half blind as to what is going on around us.

Few persons have wholly symmetrical features. The right glasses can overcome most facial irregularities. Is your nose too short? A slender, highly arched bridge will tend to give it length. Is it too long? A straight, low-set bridge seems to shorten it. Lenses can also contribute to this beautifying process. If your face is square and long, you can soften it by wearing elliptically-shaped lenses rather than octagonal shapes. If your cheek-bones are high, straight-sided lenses lessen their prominence.

Remember that your eyes should receive the best of care. Have them examined at regular intervals, because they may falter under the strain of modern living. If necessary, give them a lift with corrective lenses. Never forget, you have only one pair of eyes, and you can never replace them.

Photo by Pravin R. Shad

Your child needs a vitamin diet, with plenty of citrus fruits, to keep the vital fires burning and protect against infection.

# How to Avoid Infantile Paralysis

WE HAVE thermostatically controlled systems of heating and other automatic air-conditioning apparatus. But the most wonderful automatically controlled system of heating is that of the human body. Of course, as everyone knows, the burning of some sort of fuel is the usual source of heat in our homes. It may be coal, wood, gas, or oil. Oxygen uniting with these fuels is the chemical process by which heat is produced. It is the same in the human body, but the fuel is derived from food. This is principally the starches and sugars, with a much smaller amount of fat. The processes of oxidation in the body are much more complicated than the burning of fuel in a furnace, and they are controlled by a more complicated mechanism.

The secretion of the thyroid is perhaps the principal controlling factor. If the thyroid gland is diseased, it may produce too much or too little of this secretion, thyroxin, and so increase or decrease oxidation and heat production. Insulin formed by the islands of the pancreas also plays a part in oxidation. When it is deficient because of disease of these many little glands, diabetes results; unburned or unoxidized sugar appears in the urine; and the body is actually poisoned by half-burned fat. If a certain one of the pituitary secretions is deficient, one gains weight because of unburned fat deposited in the body. In severe anæmias, the hæmoglobin of the blood cannot carry to the tissues enough oxygen for their activities and oxidation. Many different body functions are thereby depressed.

When muscles contract, body sugar, glucose, is oxidized in the muscle fibres; and heat is liberated by this oxidizing process. But here a strange thing happens. The lactic acid formed from the burning sugar is reduced or changed back again into sugar with only a slight loss of sugar in each—about one-fifth or one-sixth. This oxidation-reduction

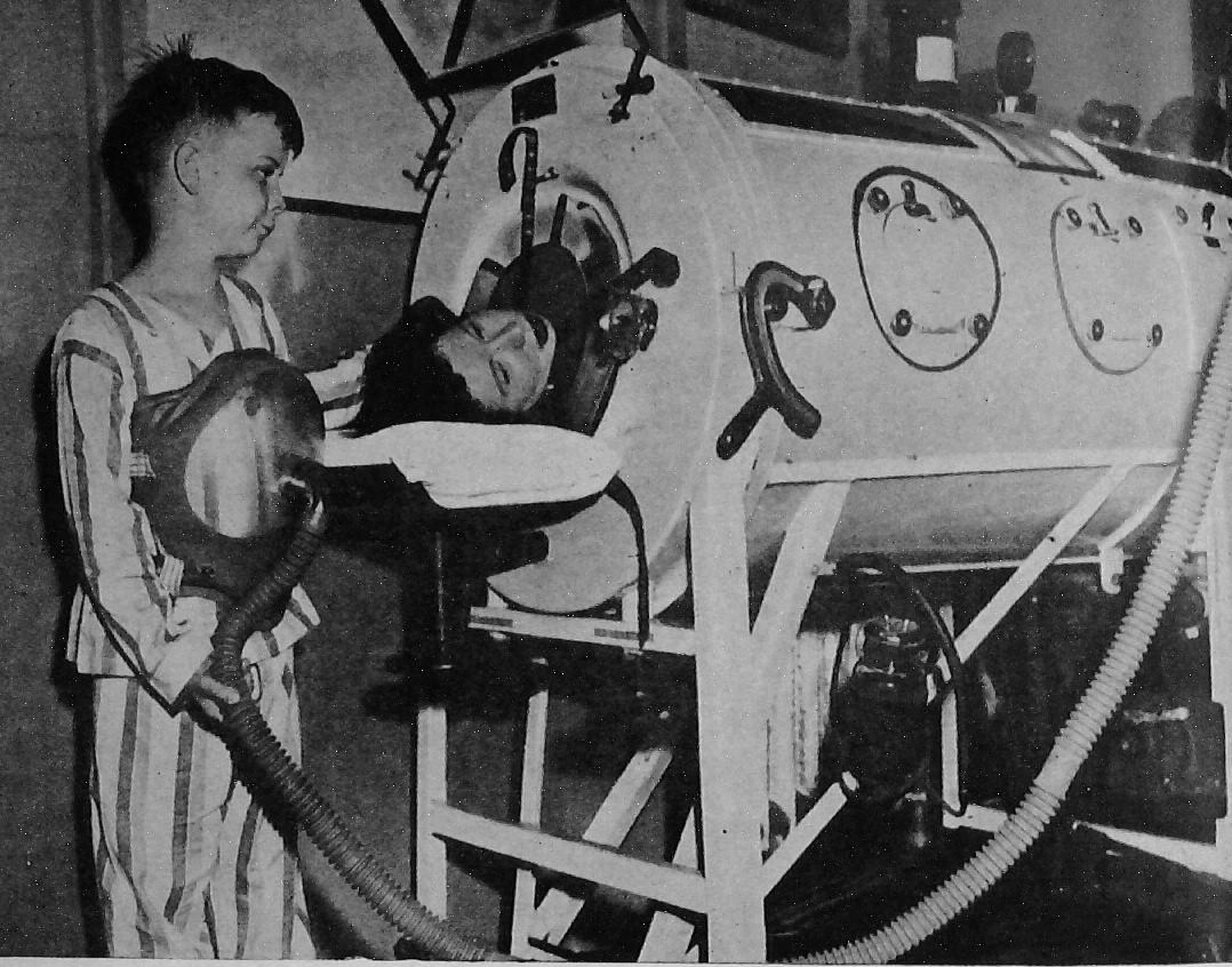


Photo by U. S. I. S.

Two types of the iron lung.

mechanism makes the body a very economical engine, using its fuel over and over again.

Several different vitamins are involved in controlling the various phases of this oxidation-reduction mechanism. If vitamin $B_1$ is deficient in the food eaten, as in white bread, refined sugar, and polished rice, or is blocked from absorption by cathartics or destroyed by baking soda, then there is unburned fuel to choke the furnace. This may be lactic or pyruvic acid or other half-burned or half-reduced substances, poisons which produce fatigue accompanied by annoying distress or actual disease of many and varied natures. Several other vitamins of the B complex play a part in this oxidation-reduction mechanism. When there are insufficient supplies of these vitamins, the internal respiration of the body cells is clogged. They do not get sufficient oxygen and so cannot breathe properly —for oxygen is indeed the breath of life for every cell and function of the body.

Not only fatigue, headache, neuritis, and other aches and pains may occur, but even epileptic seizures, mental depressions, melancholia, and temperamental and emotional upsets may result from some of these deficiencies of oxidation. Susceptibility to infections occurs also. In animals a severe blood stream infection appears with a deficiency of vitamin $B_1$, but the infection disappears when the vitamin is given in ample supply.

These vitamins are the ones found in milk, fruit, and vegetables, especially in legumes while they are still green. Sprouting legumes and grains, in fact sprouting seeds of all kinds, have most abundant supplies of these vitamins. They are present in wheat germ, along with vitamin E, so necessary to animal and human reproduction.

There is still another vitamin which has a very prominent place in this oxidation mechanism. It is vitamin C, also present in fresh growing plants, vegetables, fruit, and the milk of cows on green pasture. It has been shown to have a unique function. It neutralizes, inactivates, or destroys many different toxins and viruses—in fact every one with which it has been tested. Among these are the toxins of lockjaw (tetanus), diphtheria, dysentery, and the staphylococcus germs, also vaccinia virus, herpes virus, rabies virus, foot-and-mouth disease virus, the virus of infantile paralysis, and other plant and animal viruses. It occupies a large place in natural body resistance to scarlet fever, diphtheria, and infantile paralysis.

In studying infantile paralysis, the virus is injected directly into the brain of monkeys. Some animals die, some become paralyzed, and a few escape unharmed. If the virus is mixed with vitamin C in the test tube before it is injected into the brain, all the animals remain well. The vitamin has destroyed the virus. It becomes harmless. If injected monkeys are treated with small doses of synthetic (manufactured) vitamin C, twice as many escape paralysis as those that are not treated with vitamin C. But if the natural vitamin C is used to treat the infected monkeys, six times as many escape paralysis as those untreated. The experimenter, Claus Jungeblut, attributes this to the occurrence of two other vitamins with vitamin C when taken from natural sources.

In the test tube other oxidizing agents, such as peroxide of hydrogen or permanganate of potash, also destroy the virus of poliomyelitis. So there is good scientific evidence that this vitamin works by a process of oxidation. Such poisons as carbolic acid, which do not liberate oxygen, will not destroy the virus.

That the vital fires of the body protect us from many different infectious dis-

cases has been shown by Arthur Locke. He experimented with man in the matter of resistance to the common cold and with rabbits in the matter of resistance to the pneumonia germ. These respiratory infections we commonly associate with catching cold or chilling. This, Locke proved to be a real association, not a popular notion. His experiments need not be given in detail. But the result was that a vigorous oxidation mechanism in man allowed only one cold or less in seven months of the season for colds, while a poor oxidation mechanism resulted in four or more colds in the same seven months. He used sixty-eight men for this experiment. In rabbits he found exactly the same result, only more pronounced. Ninety-two per cent of those animals that could recover in twenty minutes from a three-degree chilling were able to destroy as many as eighty-three pneumonia germs per cubic centimetre of blood when these germs were injected directly into the veins. These animals had no fever or other symptoms of the infection. On the other hand, the rabbits that took two hours to recover from chilling all died.

So we may be sure that these internal vital fires are one basis of natural resistance to colds, influenza, and pneumonia. But what is to be done for those who do not have such vigorous internal fires with their full oxidation mechanisms? There are simple and valuable methods of treatment which have proved effective in stimulating the internal fires for such cases. They may be used successfully in the home. Lemonade and orange juice assist in keeping vital fires burning. Oxidation may be stimulated by the combination treatment of the hot foot bath with fomentations to the chest and the cold mitten friction. The prompt results in quick relief and life-saving effects in serious and often apparently hopeless cases have been encouraging.

Now comes Sister Kenny and saves children and adults attacked by infantile paralysis by the simple means of fomentations. These relieve the painful, tense muscles, lessen congestion and œdema in the affected parts of the spinal cord, and speed up the oxidation mechanism of the body. In fact, all kinds of hydrotherapy treatments with hot or cold, or the two together, increase the absorption of oxygen from the lungs and the giving off of carbon dioxide, and stimulate cellular respiration, that is, the oxidation processes of the body. This not only helps the body to resist the infection, but it is an oxidation process with "teeth in it." It destroys the virus of infantile paralysis as well as the infection of colds, influenza, and pneumonia.

It is no wonder, then, that a five-week checkup of children with infantile paralysis treated by Sister Kenny should

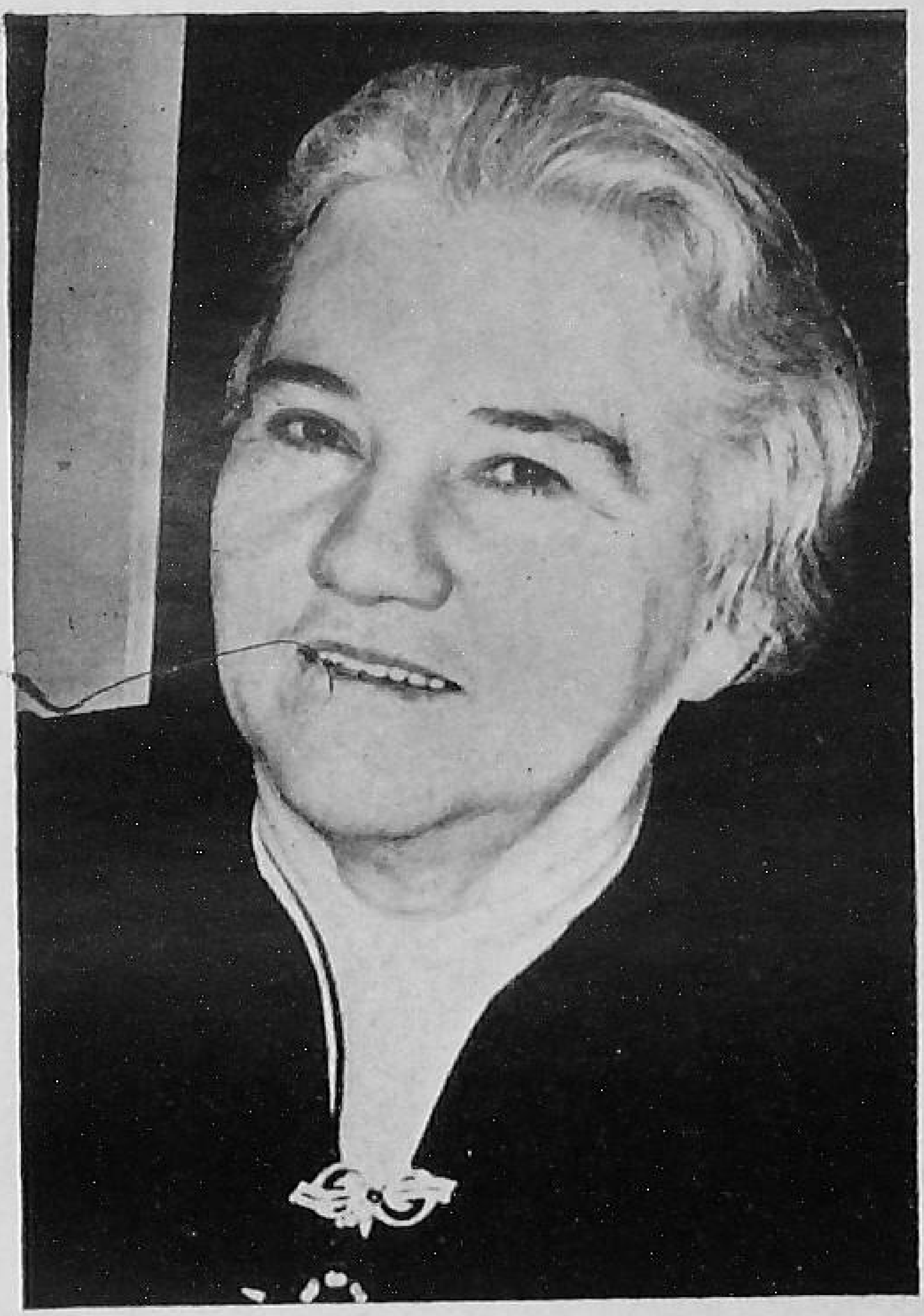


Photo by U. S. I. S.

Sister Kenny, the Australian nurse, who developed the hot fomentation treatment to relieve the painful, tense muscles, limit congestion œdema in the affected parts of the spinal cord, and speed up the oxidation mechanism of the body as an aid to recovery from polio.

show them able to hop and skip about like any normal children, lively as crickets, and that of eight persons sent to the hospital to be put into the iron lung the four treated by Sister Kenny but not put into the respirator are all alive, while the other four put into the respirator are all dead.

Keep up your vital fires with plenty of fresh fruit, vegetables, milk, and whole grains unrefined. Get your hot baths and hot and cold showers frequently so you won't need Sister Kenny's "hot foments" when the summer's epidemic of infantile paralysis is abroad in the land or when the cold season brings its cold, influenza, and pneumonia.

*For information about fomentations see page 128.

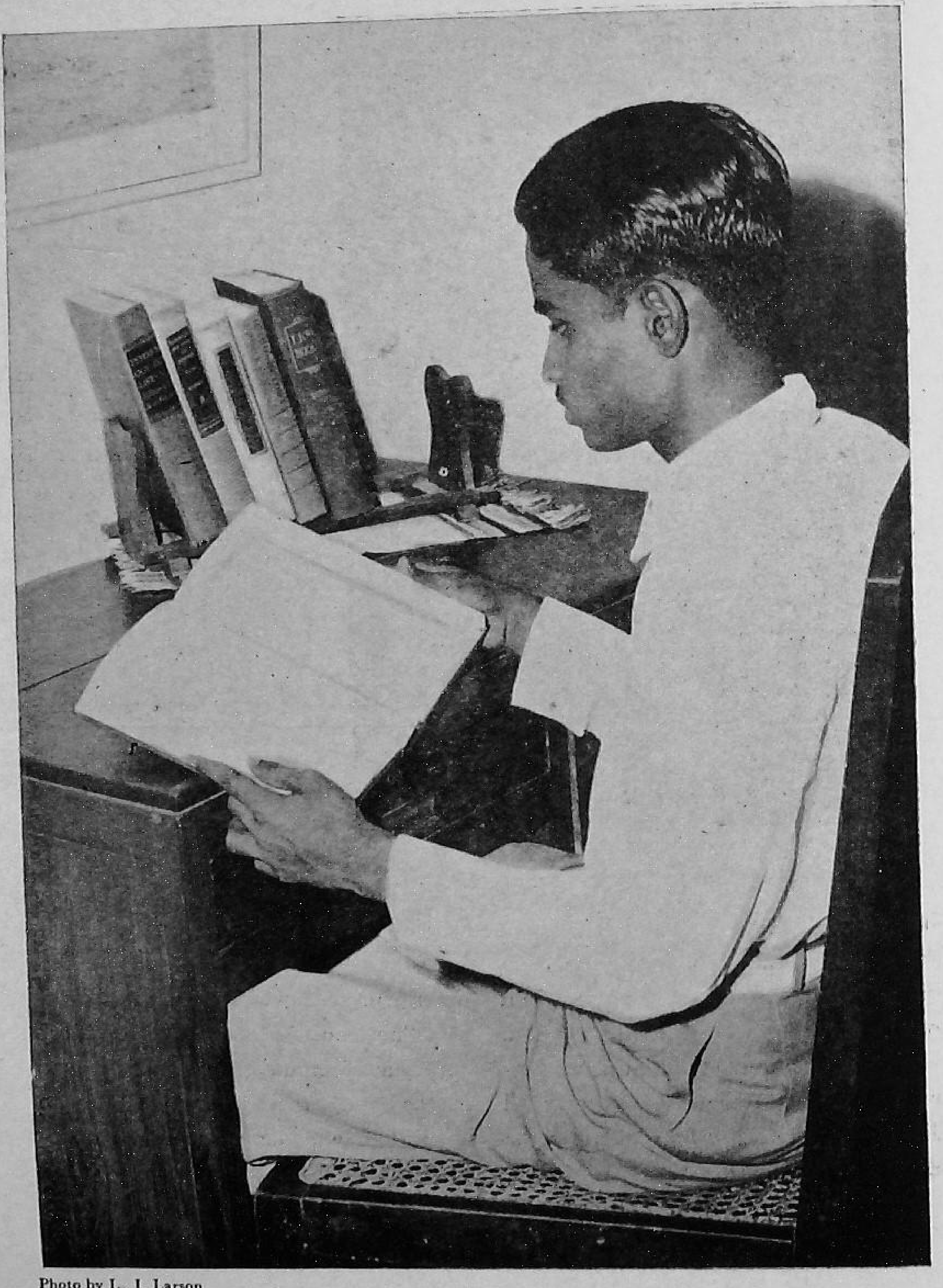


Photo by L. J. Larson

**Students need to be particularly careful to get sufficient exercise and rest.**

# Tuberculosis—Ways to Prevent It

IT IS 1821. In the bleak and chilly light of a September dawn a British vessel, the "Maria Crowther," sets sail from the foggy London docks. On board, for his health, a pale young doctor is bound for the balmy coast of Italy. Cramped into a cabin with four other passengers, he earnestly bends over a dimly lit desk. And in the early morning hours his artistic hand pens: "Bright star! would I were steadfast as thou art."

Before he can set down the next line, a sharp pain cuts across his chest like a knife. His body quivers as chills shoot up and down his spine. His face becomes an ashen grey as his eyes freeze into a gaunt stare of fear and impending doom.

Quickly pressing trembling fingers to his mouth, he tries to choke back spasms of coughing, which he has learned inevitably follow the piercing chest pain. But in vain. The terrifying paroxysms continue relentlessly until his handkerchief contains the tell-tale streaks of blood.

Being a physician, he is fully aware of his malady. In fact, he has long since diagnosed his own case. The disease producing his sepulchral cough has sapped his strength, and now, ruthless as a vampire bat, it is sucking his life blood. It is about to number him one of its own. Already his lungs are marked with the death stamp of the white plague. It has ravaged his body until only the pitiful shell remains—bony frame, hollow features, sunken eyes. But it has yet to take his spirit. With heroic effort he feverishly writes on: "Not in lone splendour hung aloft the night."

More coughing and blood punctuate his poetic lines. While fighting his last battle against a fatal lung hæmorrhage, this valiant poet-physician, his pen dipped, as if in his life blood, finishes his immortal and most famous sonnet.

Earlier in life this persevering young man had studied medicine and passed

the surgeon's examinations with credit. He was a skilled operator, but too sensitive to the nervous strain that goes with surgery. "Like a sick eagle looking at the sky," he pined for a poetic career. But this youthful surgeon, one of the world's most beloved poets, was doomed to die all too soon, a victim of the white plague which scourged Europe. A few months later, in Italy, death came to John Keats, distinguished poet and surgeon. Age: 26. Cause: tuberculosis!

For centuries tuberculosis has been a leading cause of death in Europe, America, and also in Asia, but since 1900 it has gradually declined to eighth place among the causes of death. Progress against this disease has been no accident, and thanks are due to the men of science for their outstanding discoveries, whereby they have taught the public to protect themselves against tuberculosis and seek early treatment.

To date no drug has been found that will cure the disease in all instances. The newer anti-tuberculosis drugs, streptomycin, para-amino-salicylic acid (PAS) and others hold promise, but prevention and early treatment are still the best weapons.

Because tuberculosis is a contagious disease, one should avoid contact with people known to have it in active form. This includes even our dearest relatives; tuberculosis is no respecter of persons. It is often traceable to grandmothers, aunts and uncles, who have passed it on to an innocent relative or friend by close contact. The disease is spread by germs carried in the sputum (coughed-up discharge) of a person with active tuberculosis. The important thing in control of the disease is to prevent drops of sputum or dust containing the germs from reaching others.

The germs are not so likely to produce the disease if the body's resistance is capable of coping with them. Although it can attack even the healthiest person, tuberculosis is likeliest to develop when the bodily defences are temporarily weakened by fatigue or stress.

Tragically enough, tuberculosis strikes oftenest during the prime of life, between the ages of fifteen and thirty-four, when daily activities cause greatest fatigue and stress. And because most of us set high hopes of success during these years, it would pay everyone of this age to live healthfully. For tuberculosis can wreck the best laid plans. The best precaution against it is good resistance. Good health halts T. B. Here are a few reminders concerning good health habits:

*Rest and Sleep.* Anyone recovering from a cold or other infection, especially if it has involved the lungs, should get an extra quota of rest and sleep. During periods of rest and relaxation the body builds its defences against disease, recharges the battery of nervous energy

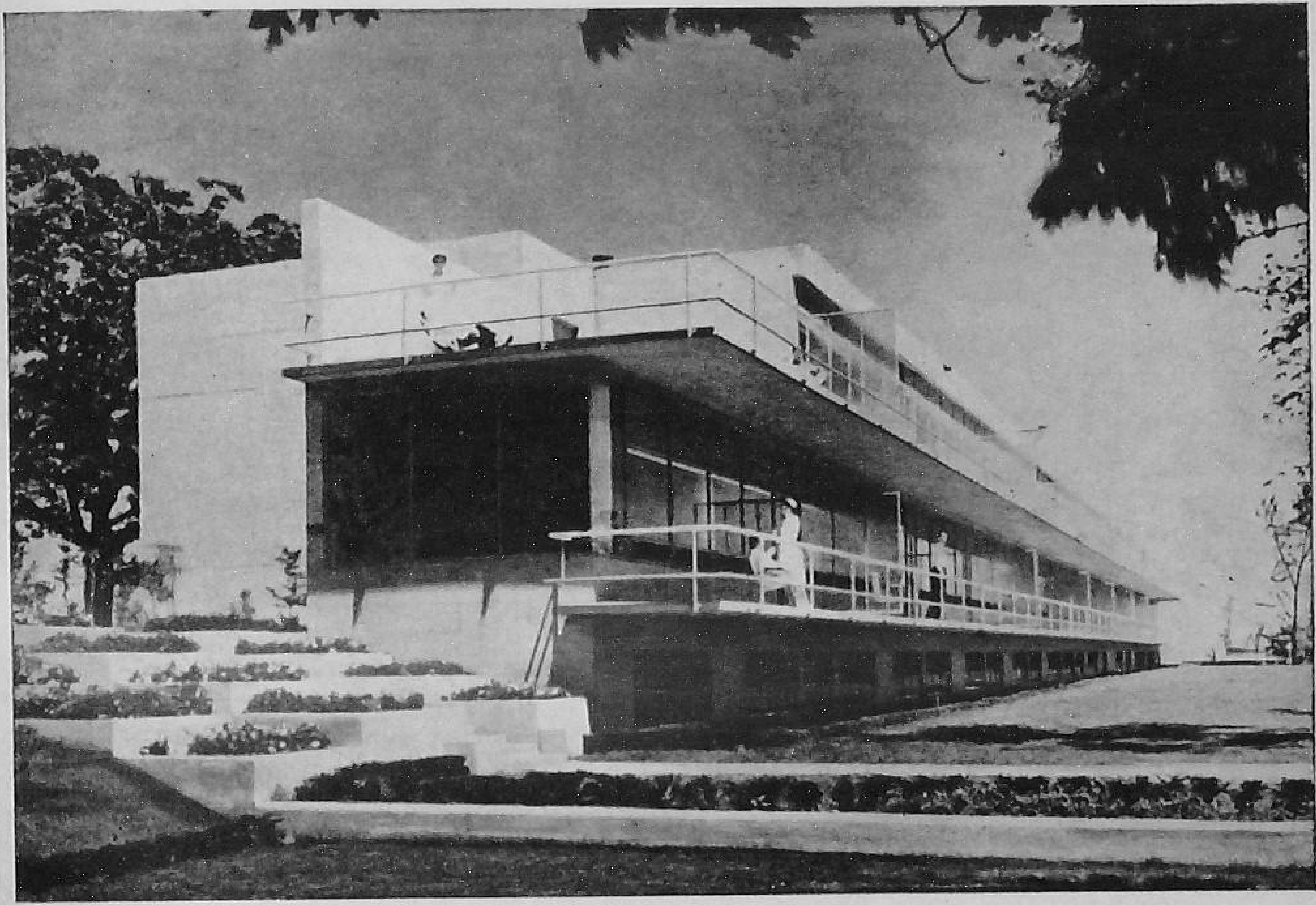
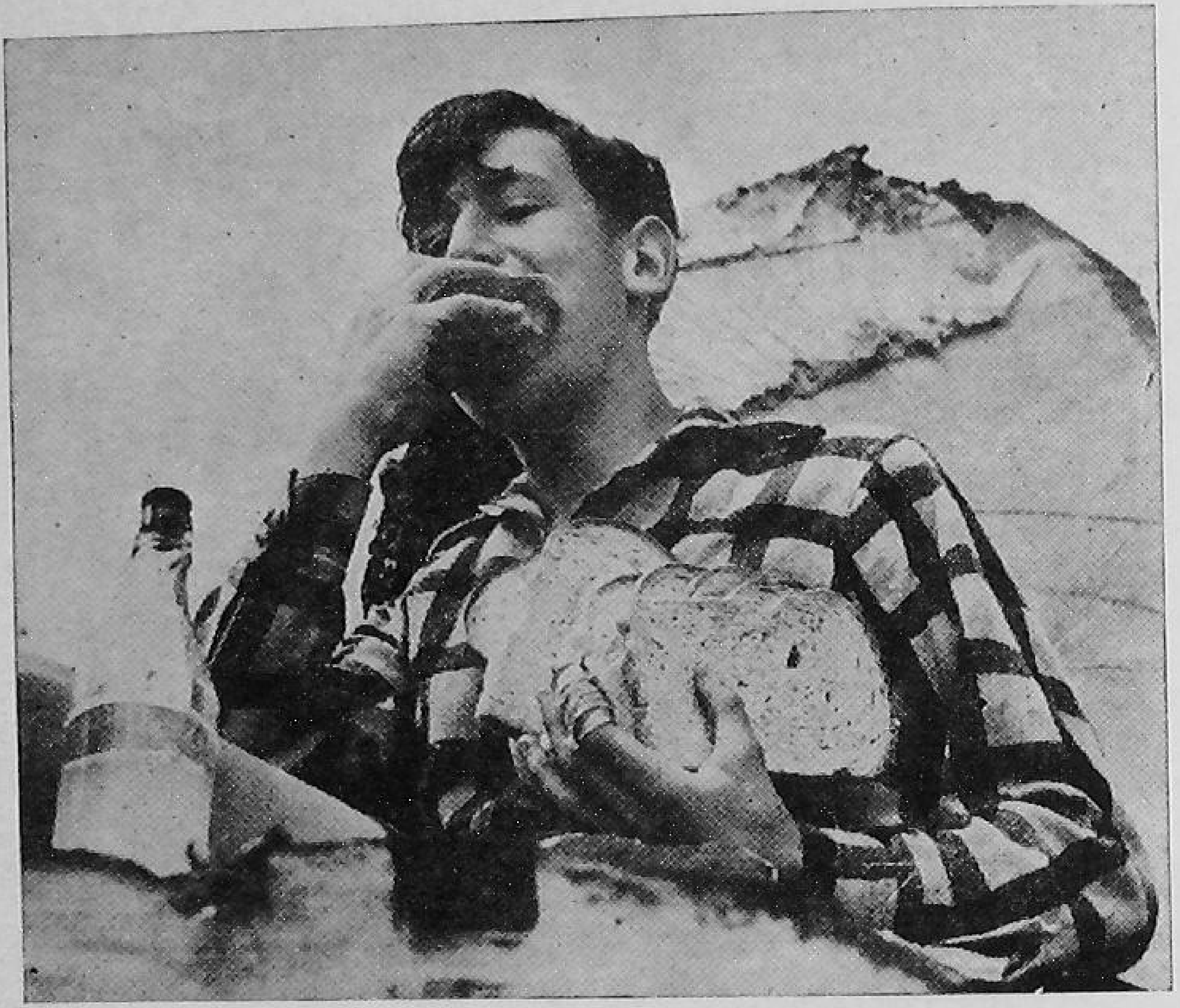


Photo by U. S. I. S.

This tuberculosis sanatorium is built so that the windows and balconies face south to ensure much sunlight for the patients.

and repairs broken-down body cells. During sleep, adequate ventilation will aid relaxation. In the hot season, sleep with windows open wide. In the cold season close off the bedroom from other parts of the house, and let the air circulate freely. Cold weather calls for more blankets but should not eliminate your supply of fresh air. There is a custom in Asia for a person to sleep with his head completely covered by the sheet or by a blanket. This custom is very unhealthy and invites T. B. germs to take up permanent abode in such a person's system. The custom for a woman to wear a purdah is also conducive to tuberculosis as statistics have many times shown.

A good way to get the amount of sleep you require is to sleep until you are rested. This means about ten or eleven hours for most boys and girls,



**Wholesome, whole-grain bread and plenty of pure milk provide the energy the body needs to help it resist disease.**

eight to ten for adults. What could be more inviting at the end of a hard day of work or play than a comfortable bed, with clean sheets and pillowcases, just enough light covers to keep you warm, plenty of cool fresh air, a dark room and the quiet night outside? These all lend themselves to sound and restful sleep.

Whenever you feel extra tired, get extra rest and sleep. Don't wait until you feel sick; build up your reserves before disease germs have a chance to invade your body. An hour's rest each day after lunch may sound like old-fashioned stuff for grandpas only, but it is a time-tested way to build up resistance after an illness or to gain the relaxation so necessary for preventing disease.

*Diet.* Everyone's diet should include something from each of the basic seven foods every day: milk and foods made from milk, such as cheese, custard, cream soups; butter or ghee; protein dishes such as eggs, nuts, dried peas, beans; green and yellow vegetables; potatoes and other vegetables and fruits;

foods rich in vitamin C, such as oranges, tomatoes, grapefruit, and salad greens; whole-grain or enriched bread, and unpolished rice. All milk should be pasteurized or boiled, for tuberculosis has been found to be very prevalent among dairy cattle.

*Water.* Most people drink sufficient water each day. A healthy person's thirst is usually a good indicator of how much water he needs. But during abnormal stress and emotional strain, we often forget to drink sufficiently. It is then that we should remind ourselves, and cultivate the health-promoting habit of drinking ample amounts of water daily.

Even the most active person must often be reminded to drink water when he has to stay in bed. During illness, especially if fever is present, it is important to take extra fluids. This may be fruit juice, hot or cold beverages, milk, soup, broth, or other liquids. Because the body is three-fourths water, any deficit in the daily intake of water is reflected in the blood and tissues of the body. A body deprived of enough water is a better target for germs.

*Cleanliness.* Water, outside as well as inside, is a health must. Bathe frequently, and wash your hands before eating. Do not use carelessly washed or common drinking cups. Keep your clothing and surroundings clean. Unsanitary living quarters breed disease.

*Fresh Air.* The air where you live and work should be kept fresh and as cool as possible. Indoor air should be as much like comfortable outdoor air as is possible. People who live in stuffy homes or work in poorly ventilated offices or in factories where silica dust or other abrasives are present in the air, are more likely to contract tuberculosis than those who flood their lungs with fresh air each day.

There was a time when the long, lean, spidery fellow with a sunken chest and round shoulders, who slumped over his work and failed to breathe deeply, was considered likelier to contract the disease than his more husky comrade. It is now known, however, that even the most healthy-looking person may contract tuberculosis. But curiously enough, public speakers and singers, who of necessity must breathe deeply, are seldom victims of tuberculosis. There is an old wheeze, "Ten deep breaths a day will keep T. B. away." Although not entirely true, it is a good health habit. So stand straight, sit up and breathe deeply!

*Sunshine.* Get your share of sunlight. Sunlight, especially the ultra-violet rays, makes you feel fit. It is one of nature's tonics. Doctors use ultra-violet rays to treat certain diseases. Sunlight helps to prevent many diseases. Sunlight helps to kill the tuberculosis bacillus. Exposing our bodies to the stimulating rays of the

sun is another way to build resistance. Whenever possible, the weather permitting, get outdoors and absorb the health-giving rays of the sun. But if you have tuberculosis, do not take sunbaths without direct orders from your doctor.

Let the sunshine into your home. If you have sunny windows in your house, open them often. If your rooms are dark and dingy, air your things on the porch, in the garden or wherever you can find the sunlight.

*Outdoor Exercise.* Play out of doors each day. As we grow older we must be reminded to exercise each day in order to keep muscles in good tone and to keep the blood circulating rapidly. Play is good mental relaxation for an adult. It is fun for all. It takes our minds off the cares of the day and keeps the body in good working order. Colds are commoner among people who live in overheated rooms. Moderate daily exercise, such as walking or playing outdoors, stimulates deep breathing. A rich supply of oxygen is carried into the lungs and helps to stop the T. B. germ. Avoid over-tiring or chilling. Over-exertion and fatigue weaken the body's resistance. Be sure to keep warm after exercising. Don't overdo.

You can take these precautionary measures on your own. But your physician must help to protect you against tuberculosis. You should have a complete physical examination with a chest X-ray at regular intervals, and at the first sign of illness.

The well-known symptoms of coughing, losing weight and spitting blood appear only when tuberculosis has been present for some time. The best time to look for T. B. is before you see any sign or symptom. And the best way to find out whether you have the disease is to have your chest X-rayed.

An X-ray takes but a few seconds. You merely take a deep breath, hold it—and that is all. The picture is then developed like a snapshot. The doctor looks at it to see whether T. B. germs have done any harm to your lungs. T. B. can be cured if it is treated in time.

When T. B. germs make a home in the human body they usually enter the lungs. Then one of several things can happen. A healthy body may fight off the germs, especially if they are few. Your body is on the job all the time getting rid of dangerous germs. Most people do not know when their body has fought a round with tuberculosis germs and come out a winner. Very often an X-ray picture shows the scars of old battles in the lungs.

In other cases the body may not defeat all the T. B. germs. Millions of people have T. B. germs living in their bodies, waiting for body resistance to weaken. The body holds its own against the germs. The battle goes on. Neither side is winning.

Photo by Govind Lal

**Raj Kumari Amrit Kaur, India's Health Minister, at the opening of a new wing of the tuberculosis hospital at the Irwin Hospital, New Delhi.**

A chest X-ray can tell the doctor that a battle is in progress. To keep an eye on how the battle is going, the doctor will want to have more X-rays and careful examinations and tests.

If a person has far-advanced tuberculosis, the X-ray will show that up easily. He can be given the sanatorium care he needs. He can be isolated from the general public, and prevent tuberculosis from spreading.

The tuberculin test is a safe, accurate and painless means of discovering whether T. B. germs are in your body. There are two variations of this test: In the Mantoux test a drop of germ-free liquid called tuberculin is injected into the outer layers of skin, usually the forearm. In the Vollmer test a patch containing tuberculin is taped against the skin. Two or three days later the doctor looks at the place where he applied the test to see whether you are a reactor or a non-reactor to tuberculin.

A non-reactor has no tuberculosis germs in his body. But being a non-re-

actor is no guarantee of permanent freedom from infection, since germs may enter the body at any time.

A reactor has tuberculosis germs in his body. The skin at the test site is red and raised. Such a reaction does not, in itself, mean active disease. It is, however, a definite indication for an X-ray of the chest. Everyone who is a reactor should be X-rayed yearly.

The tuberculin test, formerly used extensively as a screening procedure to determine those who needed chest X-rays, has recently been receiving less attention from the medical profession. In its place the miniature micro-X-ray film is now widely used to discover early T. B. It is proving more successful and as economical as the tuberculin test. However, do not hesitate to have the test if your physician advises it.

Your chances of avoiding tuberculosis have never been better. Back in 1821, John Keats, even though he was a physician, was unable to protect himself against the killer of young men. Today, with the ever increasing advances of medical science, you are offered new weapons—better informed doctors, X-ray, new tests and new drugs—to protect you and your children against this disease.

Above all, by living healthfully you do much to stamp out tuberculosis, for tuberculosis is less likely to strike a person in good health.

PART II

# HABITS THAT INHIBIT


The Effects of Alcohol on the Body .... L. H. Lonergan, M.D.

The Effects of Tobacco on the Body .... Julius Gilbert White

From "Listen"

# The Effects of Alcohol on the Body

ALCOHOL seems to bring about conditions in the body totally different from those effects actually produced. The user believes himself to be strong when he is really weak, warm when he is actually cold, energized when his nutrition is definitely impaired, and stimulated when his nervous system is truly depressed.

The effects produced by beverage alcohol depend somewhat upon the concentration in which it is used, the presence of food in the stomach, and the presence of disease in the stomach or intestines. At a concentration of about 10 per cent, alcohol produces an outflowing of acid secretion from the stomach lining. The drug is sometimes employed in medical laboratories to test the ability of the stomach glands to secrete acid.

At higher concentrations—20 per cent or more—the opposite effects are produced. Not only is gastric secretion decreased, but the activity of the digestive enzyme pepsin is inhibited. At still higher concentrations—40 per cent and over—alcohol becomes very irritating to the stomach lining, resulting in congestion, inflammation, and the secretion of mucus as a protection against further damage. The continued use of strong alcoholic beverages leads to a chronically inflamed stomach, with slow and imperfect gastric digestion.

And not infrequently the liver develops in chronic alcoholics a disease known as cirrhosis, in which many small areas are destroyed and replaced by scar tissue. As the destruction of cells proceeds in different areas of the liver, the regeneration process causes new cell groups to be formed, constituting small nodules separated by the scar tissue. Thus the surface of the organ shows small knobs of tissue, hence the term, "hob-nailed liver."

Because of the scarring and obliteration of liver tissue, the circulation of blood through the organ is obstructed.

The blood is dammed back into the veins that carry the blood from the stomach, intestines, and spleen; and these organs also suffer. As a result of the back pressure in the veins of the peritoneum (the lining of the abdominal cavity), blood plasma passes out into this cavity, where it accumulates, sometimes in such a large amount that it must be drawn off repeatedly in order to relieve the severe distension and discomfort. The disease is usually progressive and nearly always fatal.

Available evidence indicates that cirrhosis of the liver is not a direct result of the use of alcohol, but rather that it is secondary to the nutritional disturbances which so frequently accompany chronic alcoholism. Although chronic inebriation is not the only factor in the production of cirrhosis, yet the importance of beverage alcohol as a cause of the disease is shown by the fact that *liver cirrhosis occurs eight to nine times as frequently among chronic alcoholics as it does among the general population.*

Immediately after beverage alcohol is imbibed in sufficiently concentrated form, there results a temporary speeding up of the heart action, which is not a direct effect of the absorbed drug, but is a reflex effect from irritation done to the alimentary canal.

Another symptom commonly observed soon after alcohol is taken is the warm and flushed skin. The drinker feels warmer because more blood is flowing through the skin vessels. Because of this action—the increase in size of the skin vessels with consequently more blood brought from the interior of the body to the surface where it is cooled—more heat is lost and the body temperature really falls. Therefore the use of beverage alcohol to "keep warm" during, or previous to, exposure to cold is a very foolish thing to do, a fact well known to experienced polar explorers and ski mountaineers.

Alcohol definitely affects the sexual functions. As a result of the depression of the higher centres of the nervous system which have to do with judgment, will power, and self-control, the sexual desires are under less restraint. With consumption of large amounts of the drug, the spinal cord is depressed and sexual powers are impaired. Among chronic alcoholics atrophy of the testicles may result, and sexuality may be completely abolished.

"Persistent alcoholic excess, whether in father or mother, reduces fecundity and increases the probability of still-births and the production of defective young. These effects on the germ-plasm may be transmitted by heredity to later generations not alcoholized. . . .

"It is legitimate to conclude from the very convincing experiments of Stockard and others with laboratory animals that

any excess beyond the strictest moderation in the use of alcohol by parents may cause danger to the survival of offspring and their descendants for several generations."—Haven Emerson, M.D., *Alcohol: It's Effects on Man.*

That alcohol lowers resistance to disease (especially pneumonia) is evident from many reports in medical literature. Typical are these figures from the Cook County Hospital, in Chicago, U.S.A., summarizing the death rates among 3,422 cases of pneumonia:

| | |
|---|---|
| Among excessive drinkers | 49.87 per cent |
| Among moderate drinkers | 34.40 " " |
| Among abstainers or occasional drinkers | 22.45 " " |

Lambert reported similar figures from Bellevue Hospital, in New York, U.S.A. Among 1,000 pneumonia cases, the death rate of alcoholics was 50 per cent as compared with 24 per cent among the non-alcoholics. Available evidence indicates that this increased mortality among chronic alcoholics is due to the fact that alcohol inhibits the movement of the white blood cells in their fight against the invading bacteria.

As soon as alcohol enters the blood stream and is carried to the liver, the process of detoxification begins. In this combustion process, it is burned up to form carbon dioxide and water, with the production of heat. This oxidation is comparatively slow, amounting to about two teaspoonfuls of alcohol an hour (roughly, the food value of only two lumps of sugar an hour), the rate varying somewhat because it depends upon the concentration of alcohol in the blood.

This liberation of heat from the burning of alcohol is what leads some to suppose that the drug is a food. There is serious question as to whether alcohol is ever a source of energy for muscular work. Unlike real foods, alcohol cannot be stored in the body, but remains in the same form until it is completely burned or eliminated. The oxidation of the drug proceeds at a steady rate, regardless of the body's needs. The drug can be utilized neither in growth nor in repair of body tissue.

Unlike food, alcohol possesses a predominant pharmacologic action on the central nervous system, and for this reason it is classified universally as a *depressant.* This is by far the most important of its various effects on the human body. Any substance possessing the potentialities of alcohol for producing a vicious habit can hardly be called a true food.

Instead of favouring proper nutrition, beverage alcohol is one of the greatest known hindrances to the attainment of adequate nutrition. In fact, some degree of dietary deficiency may be found in practically all chronic alcoholics. The important reasons for this peculiar result are three: (1) *Decreased food intake*

Photo by H. A. Roberts

"Alcohol kills the living and preserves the dead."

(as a result of loss of appetite; and also because of the economic aspect, as when the chronic alcoholic spends his limited funds for his drink rather than for the essential food); (2) *Decreased absorption and utilization of the food eaten* (as a result of the changes in the alimentary tract and liver); and (3) *Increased food requirement* (as the non-fat calories in the diet are increased with the consumption of beverage alcohol, there is a corresponding increase in the vitamin requirement, especially those of the B complex.)

Among the specific nutritional deficiencies most likely to develop in the chronic alcoholic, two especially may be mentioned: (1) *Beriberi,* with its characteristic involvement of the nerves controlling the legs and arms; or involvements of the circulatory system, with weakness and enlargement of the heart; and (2) *pellagra,* with a sore tongue; a rash over the hands, ankles and neck; abdominal pain, diarrhœa, and serious mental changes.

Beverage alcohol is a direct cause of several serious mental diseases. From a study of over 56,000 patients in Massachusetts, U. S. A., Dr. Neil Dayton of Boston reported that chronic alcoholism was a prominent cause of one-fifth of

all admissions to mental hospitals in that State.

But of equal importance to body deterioration which may occur after years of chronic inebriation, and which is accompanied by such mental and physical changes that the victim finally becomes a public charge, are the *immediate* effects of alcohol on the nervous system. Acute alcoholic intoxication is really a mental disorder. But it appears that physicians in years past have concentrated their attention rather on the various tissue changes which may result from many years' use of the beverage, than on the immediate effects of alcohol on the brain.

In the study of pharmacology, alcohol is classified as a *depressant* of the central nervous system. This concept is diametrically opposed to the popular idea that alcohol is a stimulant to all the vital processes. It is true that the individual who is under the influence of a moderate amount of this drug may appear to be stimulated. He talks much, laughs loudly at minor jokes, is unembarrassed by mishaps, and is careless about the impression he makes upon others. But here again alcohol betrays its true effect. When analyzed, all these characteristics are but indications of the first actions of alcohol on the brain, showing that it depresses those centres which have to do with reason, will power, judgment, and self-control. The brakes are released, and the emotions are given freer play.

Scores of separate investigations have been made in various laboratories on the effects of alcohol on memory, judgment, muscular strength, and skill. The only conclusion to be reached from a review of all these reports is that alcohol reduces efficiency. Reaction time is slowed 6 per cent after drinking 1½ glasses of whisky, and 34 per cent after 3½ glasses. To a motor car driver this would mean that at a speed of fifty miles an hour it would require about seventeen feet more of road space to bring his car to a full stop.

Too, there is the relationship of beverage alcohol to traffic accidents. It is not alone the impaired vision, the decreased hearing, or the slowed reactions, as definite as these may be, which are mainly responsible for the marked increase in accidents among alcoholics. The *impaired judgment* and the *unwarranted self-confidence* produced by the use of only *small amounts* of beverage alcohol lead the driver to take risks far in excess of what he with his normal judgment, would do.

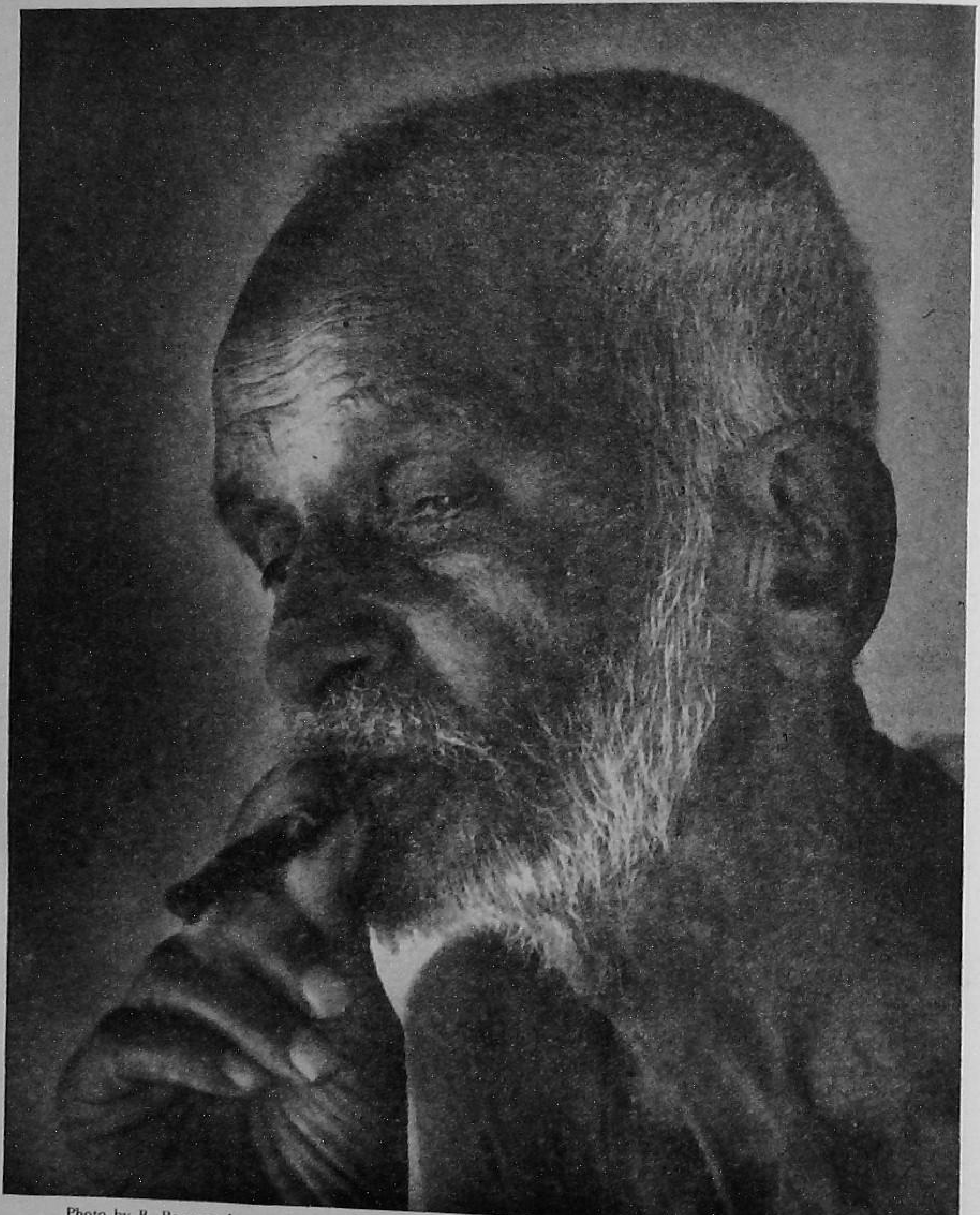


Photo by B. Ranganathan

# The Effects of Tobacco on the Body

TOBACCO injures in more ways than almost any other drug. It is 100 times more deadly than alcohol and contains from 1 to 9 per cent nicotine. From 10 to 80 per cent of the nicotine is given off in the smoke. Consequently, the smoker may absorb as much as 79 per cent of it. He does absorb at least 50 per cent of it by the nose, mouth, air-passages, and lungs. The carbon monoxide content of coal gas is 4 to 10 per cent, of automobile exhaust it is 6 per cent, and of smoke from a cigar it is 6 to 8 per cent. This should indicate that tobacco smoke is *deadly*. There are nineteen poisons, all deadly, in cigarette smoke. Among these is furfurol which is fifty times as toxic as alcohol. One full dose of furfurol produces stumbling, staggering, twitching, and convulsions.

There is the same amount of furfurol in one cigarette as in two ounces of whisky. Therefore, the boy who learns to like furfurol in cigarettes will easily learn to like it in whisky. It is useless to contend that tobacco is not poisonous, for it has been proved that one-sixth of a drop of nicotine will kill a cat or a rabbit.

From one half-to two drops of nicotine will kill a dog and it is no better for the boy. Eight drops of nicotine will kill a horse in four minutes. The late Dr. Harvey W. Wiley wrote in *Good Housekeeping:* "I can say only one good thing about tobacco, and that is, a decoction of tobacco is speedy death to lice and ticks, and makes an ideal dip for pigs and poultry."

One drop of nicotine is fatal to a man if the whole drop is taken at one time. One pound of tobacco contains from three to four hundred grains of nicotine, enough to kill three hundred men. The quickest way to kill with nicotine is to apply it to the trachea. When a glass rod dipped in nicotine was touched to the throat of three small cats they all died in fifteen seconds. One drop

touched to the cornea of the eye of an animal caused instant death.

The smoker may claim that his body has established a tolerance and does not rebel against these poisons as it once did. There is no such thing as tolerance to tobacco. The protest has been annihilated so that the mischief is going on without objection being raised. This situation is more dangerous than when the protest was active.

"We will not eradicate oral cancer from the human race until doctor and patient realize that the cause of leukoplakia is tobacco, and the only treatment is to stop tobacco in all forms, and clean and smooth the teeth."—James Cole Bloodgood, M.D., in *Practice and Surgery*, Vol. IV.

Among one hundred cases of cancer of the mouth, it was found that 90 per cent were smokers.

The function of the liver is to destroy organic poisons and so protect the body. This work is done by its cells. A drug taken by mouth is only half as effective as when injected hypodermically because the liver destroys much of it before it reaches the general circulation, and in this way the liver may prolong the lives of tobacco users. The liver also aids in digestion, and if we keep it busy with excess poisons it will be more or less hindered in its digestive work. Tobacco eventually destroys the cells of the liver which do this wonderful work.

"It is estimated that the entire inner surface of the lungs is one hundred times greater than the skin surface of the body."—W. H. Howell in *Physiology*, p. 645. About one third of the body poisons pass through this living membrane from the blood into the air sacs to be exhaled. So urgent is it that the blood be thus purified that we are supposed to breathe sixty barrels of fresh air in a day. This passing of poisons through this membrane into the air and the passing of oxygen through the membrane, from the air into the blood, is absolutely essential to life and health. It is done so quickly and the rush of blood through these membranes is so rapid that the quickest method of distributing poisons over the entire body is to take them into the lungs. From the lungs they immediately are distributed everywhere. A poison put into a vein or artery has first to be carried to some blood distributing organ before it can go into the general circulation: and a poison taken by mouth is about half destroyed by the liver before it can get into the general circulation. From these facts you can see that the most injurious way of introducing a poison into the body is to pass it into the lungs as is done by smoking. Smoking is a prolific source of chronic diseases of the lungs. The United States surgeon, General Rixley, has said: "The prevalence of tuberculosis in the navy is chiefly due to the use of cigarettes."

Tobacco causes disintegration of heart and arteries and a thickening of these tissues. In this way it causes a rise of blood pressure. The constriction of the arteries before mentioned makes the work of the heart more difficult. Its normal work is to lift one hundred and twenty tons, a lift of one foot in twenty-four hours. One cigarette increases the heart load ten per cent. Years of tobacco using makes the walls of the arteries permanently thick and reduces the lumen where the blood flows, making the passage of blood more difficult, requiring more pressure from the heart and in this way sends the pressure up fifty, seventy-five, or one hundred points, because life depends on the heart getting this blood circulated through the body even though the lumen is smaller.

There are nine hundred and seventy miles of blood vessels in which the lumen has been decreased in size, and yet every organ and muscle and nerve depends on this circulation of the blood for its life and function.

The carbon monoxide also damages the red blood cells. In some persons they are reduced almost 60 per cent in number. Life is absolutely dependent, moment by moment, on the quantity and condition of these red cells. The kidneys filter all the blood in the body in about seven minutes.

Two-thirds of one kidney can normally handle all the poisons that belong in the body, therefore we have a kidney and one-third to spare. But tobacco and other poisons are introduced into the body to such an extent that with many people this spare kidney and a third has been used up. These poisons destroy the cells of which the purifying plants are made.

The records of one life insurance company showed that a large proportion of active business men have damaged kidneys. One company turned down 43 per cent of its applicants, and 90 per cent of those rejected were unaware that anything was wrong with their kidneys

You have seen that for the kidneys to do their work it is necessary that an immense amount of blood flow through their blood vessels unhindered. But tobacco contracts the blood vessels all through the kidneys, cutting down the amount of blood that it is possible to force through them, and this lessens their efficiency in purifying the blood and so contributes to a further accumulation of poison in the body.

A man forty-five years of age went to a physician and was much surprised when told that he had tobacco heart. He did not believe that tobacco had injured him because both his parents always used tobacco and lived to be ninety years of age. Nevertheless this

patient died at fifty-five years of age, notwithstanding his contention that it did not injure his parents.

This man also had a son who smoked, and the son died of apoplexy at the age of forty-five. He, too, was still bragging of how tobacco did not injure his grandparents. The truth was the grandparents passed their injuries on to the son and he passed his and theirs on to his son, so that it all piled up on the third generation. Below are listed some aids in stopping the use of tobacco.

1. A firm decision never to use it again. This decision should be based upon a knowledge of its evil results. When the mind turns to tobacco, and the desire for it is strong, think about the injurious results rather than the desire to use it. Realize that no benefit would be derived from its use. Do not think up an excuse for using it. Understand that *no danger* lies in stopping its use.

2. If possible, change your environment and associates for a time.

3. Discontinue the use of all spices.

4. Use vegetable carbohydrates, fruits, and milk freely, as these foods are all anti-tobacco. (Use 90 per cent fruits and vegetables.)

5. Maintain active bowel evacuation.

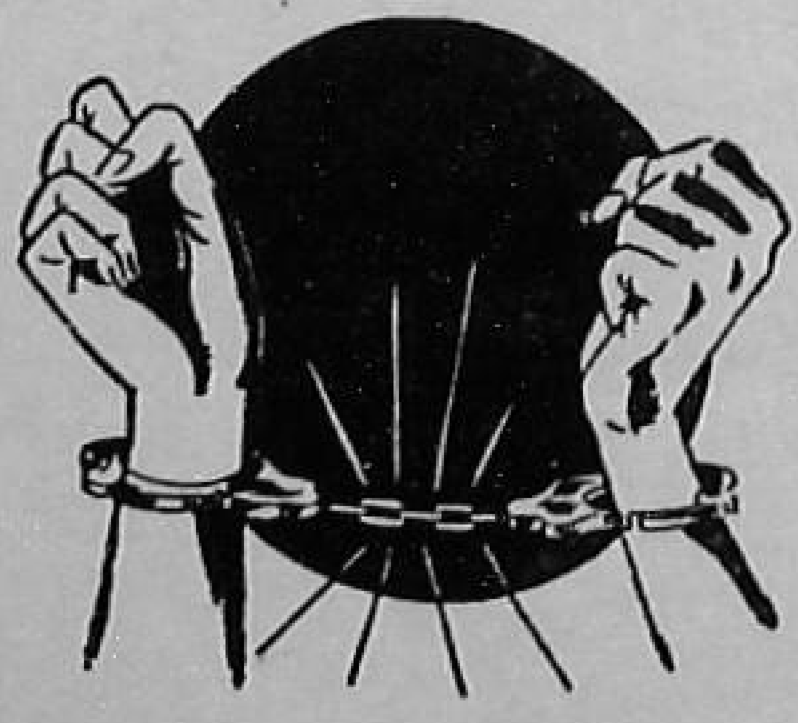
6. Take a neutral bath at bedtime, 92° to 96° F. Induce a free flow of perspiration in some way daily.

7. Take a cold morning shower or sponge.

8. Drink water freely between meals.

9. After each meal, for one week, rinse out the mouth with a quarter of one per cent solution of nitrate of silver.

10. Surrender the appetite and the entire life to God.



## Part III

# SAFE REMEDIES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|---|---|
| The Healing Value of Laughter | S. A. Shoemaker |
| How to Relax and be Healthy | Donna M. Love |
| The Greatest Medical Prescription | Murl Vance |
| The Healing Power of God | Russell L. Dicks |
| How to Care for the Sick at Home | L. A. Hansen |
| A Few Home Treatments | L. A. Hansen |
| Symptoms and Treatment of Acute Poisoning | |
| First Aid Directory | |
| What You Ought to Know About Communicable Diseases | Joseph T. Mossberger, M.D. |
| First Aid Measures | Hubert H. Swartout, M.D. |

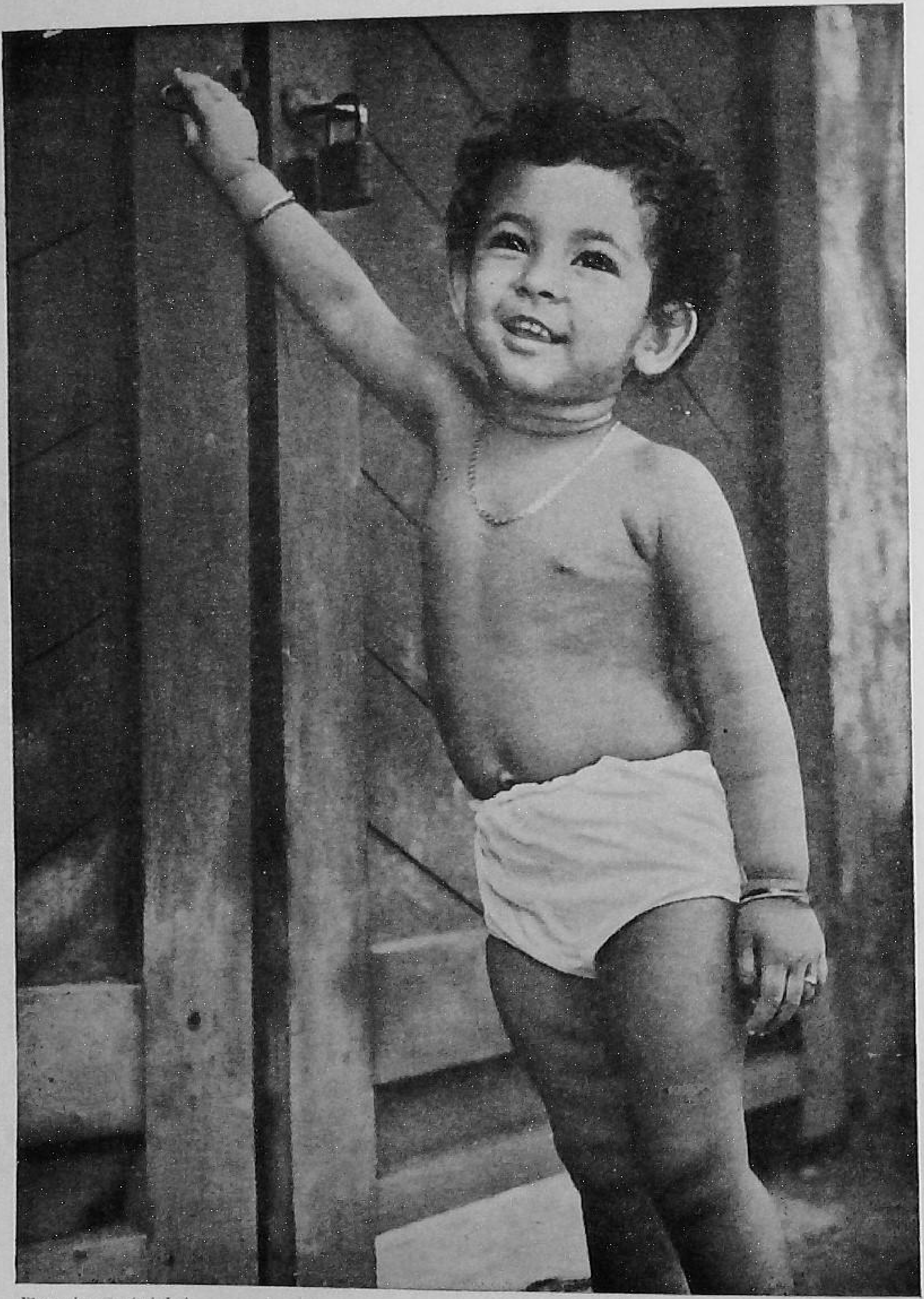


Photo by Govind Lal

A smiling face is welcome everywhere.

# The Healing Value of Laughter

LAUGHTER is defined as a "series of spasmodic and partly involuntary expirations, with inarticulate vocalization, normally indicative of merriment. It is often a hysteric manifestation or a reflex result of tickling."

From the beginning of civilization, men have written of the benefit of laughter to health. Twenty-eight centuries ago the wise man recorded in Holy Writ that "a merry heart doeth good like a medicine." Since that time poets, novelists, and medical men have discoursed on the healing power of laughter. But none until recent years has attempted to describe the method in which it is done. Laughter was always an art. Recently it has become a science.

Our medical fathers knew empirically that properly regulated laughter was an aid to health; but critics said that the claim was based on fancy and sentiment. The work of Drs. Paskind, Pavlov, Cannon and others has lifted this subject from empiricism and placed it on a firm basis of scientific certainty and demonstrated fact.

Dr. Paskind showed by 150 laboratory tests that laughter reduces muscle tone and relaxes the tissues, while frowning raises muscle tone and thus puts the body under tension and strain. This proves the relaxing and restful effect of laughter, even though it does vigorously exercise certain muscles and organs. Worry, fear, and anger, or even voluntary frowning in which the face muscles only are involved, produce fatigue and a waste of energy.

Laughter is a healer not only of the body but of the mind also. Women laugh less than men. This may be due to the fact that long ago it was thought to be immodest for girls to laugh. Hence this restraint, based on a wrong conception of propriety, fastened on women the habit of repressing laughter. Men, not having been so hampered by social restriction, have indulged freely in

laughter. And as every practitioner knows, there are fewer men than women among the doctor's clientele. Clinicians believe the repression of laughter has much to do with the greater morbidity among women.

Laughter has a social and civilizing influence. A prominent doctor declares: "If a wholesome sense of humour and plenty of laughter were universally prevalent, the majority of hospitals, sanatoriums, doctors, and nurses would be out of jobs, and war itself would be relegated to the past and dark ages." Although this is rather a strong statement, it contains a germ of truth.

Laughter is the language of peace, sympathy, and good will. It is the fragrance of life that yields health and friends, and increases your bank account.

According to one medical authority, "laughter is the most wholesome and rejuvenating of all exercises, improving the appetite and digestion, enhancing the freedom of circulation and respiration, giving sparkle to the eye, and the glow of youth to the cheek. The man or woman with a mirthful temperament eats well, sleeps well, works well, and enjoys life."

In laughter, the muscles of the face assume a characteristic expression; the muscles of the diaphragm, thorax, and abdomen go into a state of rhythmic contraction, the expiratory muscles of the chest cause gusts of air to pass tense vocal chords, giving rise to the characteristic sounds of laughter. This is the spontaneous expression of genuine mirth.

Shakespeare exclaims, "Oh, I am stabbed with laughter." If laughter is long and violent, the excessive tugging of the diaphragm may cause pain. We say in plain language, "I laughed until my sides ached."

There are various gradations of laughter, from a faint smile to convulsive movements of the whole body. Often the contraction of the orbicular muscles around the eyes during laughter results in the shedding of tears; hence the remark, "I laughed till I cried." It is genuine hilarious laughter that does the most good.

The ideas and situations that make us laugh are classified as wit and humour. Wit may be kindly, or neutral, or it may carry a sting of sarcasm. It is the shock or pleasant surprise from meeting an unexpected likeness between things that differ or an unexpected difference between things that are alike; or it occurs as the result of utterly incongruous things combined in the expression of one idea.

In contradistinction to wit, humour deals with incidents, characters, and situations. True humour is always kindly and gracious; while it points out and pictures the weaknesses of humanity,

it feels no contempt and leaves no sting. It has its root in sympathy and blossoms out in toleration.

There are species of laughter that cannot be classified under wit or humour. Laughter from being tickled is an example.

The most delightful type of laughter is that which emanates from children at play. The normal child can laugh without the stimulus of wit or humour. It is the natural expression of the play instinct. Children laugh much and laugh easily. Lavater says, "Beware of him who hates the laughter of a child."

As people advance in years they laugh less than they did in childhood. The fact is they should laugh more, because they are now less able to engage in physical exercise and active sports. Old people and those of sedentary habits are especially in need of cultivating the art of laughing, because the organs of such persons are prone to become sluggish; the circulation slows down; glandular secretion is retarded, and a tendency to constipation develops, as does also a torbid liver.

If we would have life abundant and flowing over, we need a copious supply of oxygen, and this can be secured most easily through laughter. At the same time, this deeper oxygenization of the blood is secured without the irksomeness of conscious effort that accompanies exercise taken up for its own sake. Thus through laughter one can revitalize one's blood while reclining on an over-stuffed couch when not able to engage in active sports in the gymnasium.

It is said that only 350 cubic centimetres of air is changed in the lungs in one breath cycle, which is one-tenth of the real lung capacity. On hearty laughter the amount of changed air may be multiplied seven times. Lung exercise similar to that obtained at a football match—but without the danger of bruises, sore muscles, or broken bones—may be had by laughing while seated in an easy chair.

Laughter is an easy, safe, and efficient mode of vitalizing the blood and massaging the tissues for the aged or those with stiff joints or spinal curvature.

One authority states that "the vertical excursions of the diaphragm in vigorous laughter cover a space of three to four inches." This massages the heart and all the abdominal viscera. Another says, "Laughter shakes the stomach and intestines as you would shake the contents of a half-filled bottle." This vibratory action is especially beneficial to the heart. It is a quick tonic, and has been attested by clinical demonstration.

Laughter is the therapeutic modality of choice for the neurotic, irregular heart. Patients with this affliction were afraid to laugh lest their heart should stop altogether; whereas experiments have proved that a hearty laugh re-

peated at proper intervals has relieved this trouble. The heart is deeply under the influence of the emotions, and the free outburst of laughter combined with its mechanical action produces a salutary effect on that organ.

The bounding, shaking, and churning of the abdomen seen in the act of laughing are due to the extreme activity of the abdominal and thoracic muscles, in conjunction with the diaphragm. A physiologist says, "This muscular activity extends from the throat to the pelvis. All the glands of the neck and throat, the entire contents of the thorax and abdomen are vibrated, churned, heaved, and massaged in the act of laughing. This includes most of the endocrine glands. These ductless glands, formerly thought to be useless, are now found to be vitally important to life and health. Among these are the thyroid and suprarenals. Their blood supply and activity are quickly augmented by laughter."

The movements set up by the act of laughing undoubtedly arouse the suprarenals to accelerated activity by supplying more blood to them and therefore causing more adrenal fluid to find its way into the blood stream. The adrenal fluid is of extreme importance. It tones the muscular coat of the blood-vessels and heart, raises the blood pressure, and as a consequence makes the man who felt "down in the dumps," pick himself up and feel a different man. Probably much of the good effect of laughter on the disposition, lifting it from gravity to gaiety, is due to stimulation of the suprarenals in the process of laughing.

This physiologic factor in the promotion of health has not received as much attention as it deserves, because we have been more occupied with the chemical side of therapy. Laughter is, I believe, an important agent in health promotion; and as it costs no money, it is within the economic reach of all.

The thyroid supplies iodine which is essential to life and intelligence. It is said that 1/25,000 grain of iodine stands between a mental giant and a blithering idiot. The thyroid gland freely participates in the benefits from laughter.

Since nearly all the ductless glands are stimulated by laughter, it is obvious that the visible exercise of the mirthful emotions is an important adjunct to therapeutic resources.

As laughter relaxes both body and mind, it thus breaks up or prevents spasticity in the various organs. Many a neurosis or psychosis might have been prevented by a well-timed laugh. Laughter is the surest and quickest means of relaxing such mental and physical strain. It is more effective than any drug for this purpose, and leaves no bad after-effect.

I am not unmindful that there is plenty of trouble in this world, but that

is all the more reason why we should not fail to sip the nectar from all the flowers of mirth that spring along our path.

Laughter is a tonic to the sluggish and a sedative to those overwrought with panic and fear.

Dr. Bram says, "We are badly in need of a chair in the art and science of humour to be endowed in every college in the country, even if this were to displace some courses in higher astronomy."

Laboratory tests and serum treatments are necessary and indispensable, but if we push these to the exclusion of caring for the emotional side of patients, we shall convert the human race into a nation of mice and guinea pigs.

Laughter is not presented as a cure-all. The surgeon, the internist, and the specialist will continue to use all the therapeutic measures they have found useful; but while doing so they will find use for laughter in the correction of perturbed emotional conflicts.

Fear, anxiety, and anger are the greatest enemies of man. They are the rust and carbon that clog and corrode the joints of our physical and mental economy, and they can best be scoured off by the oil of mirth.

Spontaneous laughter is better than the forced laughter of the paid clown. There is a difference between guileless mirth and buffoonery.

Humour, like commodities, may be of high or low class. Goethe said, "Men show their character in nothing more clearly than by what they think laughable."

Why not laugh? It costs so little. It is worth so much.

"Mirth is God's medicine; everybody ought to bathe in it," declared Oliver Wendell Holmes, thus putting himself in perfect agreement with Solomon who told the world nearly three thousand years ago that "a merry heart doeth good like a medicine."

# How to Relax and Be Healthy

FEW of us can lead peaceful, quiet lives in these days of hurry and strain. In the office, in the factory, and even in the home, we find ourselves caught up in a ceaseless whirl of activity. Once caught in its unrelenting current, there is difficulty in extricating oneself from its unyielding pull. Our modern life is exciting and exhilarating, it is true; but it is tiring also, and it becomes a steady wear and tear on our nervous system. That is why we find, in spite of the countless benefits that modern civilization has built up for our comfort and ease, that many of us who have not found the secret of healthful relaxation "go under" nervously in the constant battle of earning our living.

But there is an antidote for this. Much pleasure as well as benefit can be derived from life if we learn to re-educate our bodies and minds so that the system is adjusted to meet all demands with a minimum of nervous strain. This can be accomplished in our own homes without any expensive apparatus. All that is needed is a well-ventilated, softly lighted room in which there is a wireless or gramophone. Music, with its soothing influence, plays a large part in the process of our learning how to relax and to overcome the tenseness that causes us to tire easily and to become nervous and fidgety.

First, put on a gramophone record or tune the wireless to gentle, quiet, soft music. Then lie down on the floor, flat on your back. If you have a gymnasium mat, so much the better; but it isn't necessary. Now lie quietly for a short time, definitely concentrating on "letting go." "Let go" all the tenseness that makes the nerves and muscles of your body tight and taut. Consciously drop each little feeling of tenseness until your body becomes soft and pliant, for then you will begin to feel relaxed and as if you never wanted to move again.

Try to have your spine lie very flat along the floor. Make it touch the floor

along its entire length if possible, and feel as if you were actually pressing it into the floor. When you have achieved as straight a backbone as you can, begin, very gently and slowly, to stretch. There is nothing kinder to the body than this stretching, as you will soon find, for you will begin to be repaid with a wonderful feeling of relaxation and well-being.

Hold your arms outstretched on each side, and stretch and stretch. Imagine that you are striving for something just beyond your fingers' reach, and make each finger do its work of stretching. Then stretch the arms upward, high, higher, as though you were stretching for the ceiling.

After that, rest for a few minutes, and then begin taking long, deep breaths. Count the inhaling breath—one, two, three; hold for three counts; then exhale slowly—one, two, three. It is amazing what quiet, rhythmic breathing will do to quiet and relax the body.

After the period of rhythmic breathing, begin to stretch again. Stretch the neck up very gently, and then stretch from side to side, as this exercise will loosen the strained nerves and muscles that so often make you "headachy" and nervous. Then have another period of rhythmic breathing, and begin stretching the legs—first one and then the other. Make the toes stretch out as far as possible, just as you did with your fingers.

Don't be surprised if some prodigious yawns are soon forthcoming. Welcome each one, because it means that your body is dropping the tenseness acquired during the day, and is beginning to feel the desired relaxation. With this relaxation you are building up new strength and vigour for tomorrow. The sensation will be so agreeable that you will soon find yourself eagerly awaiting any available time in which to practise what you have already learned.

After you have stretched yourself well out of all the "kinks" that have tended to impede good circulation, you may try a more difficult task. Curl up into a nice soft ball, just as you have seen a contented cat curl up in front of a fire on a cold day. Try to make your head meet your knees, then straighten out again. It's not so easy to do, but with practice it soon becomes a lot of fun.

The next exercise should be that of rolling. Once again you can advantageously imitate your pet cat. Relax to the utmost, particularly the neck muscles, straighten out on the floor, and then roll completely over as many times as space will permit. As you do this exercise, watch very carefully to see that you eliminate all tenseness from your body. In imagination see some happy, playful kitten rolling about on the floor, and try to catch some of its spirit. It's fun for them, and you can put fun into your exercises by trying to imitate their

carefree relaxation. When you're doing this to music, it soon ceases to be a tiresome "must" exercise, and becomes something to enjoy.

As we learn to relax, to breathe quietly and rhythmically, to stretch all the tenseness out of our bodies, we are helping ourselves along the road to better health and happier living. The longer we do these exercises, the easier it will be to detect strain and to "loosen" out of it. There's health and happiness in relaxing—so, let's relax!

## Ten Aids to Relaxation

Ten "tricks" which are believed to be useful in realizing relaxation are presented in *The Journal of the American Medical Association* in an editorial which points out the importance of relaxation in relationship to longevity. *The Journal* says:

" 'If we could learn how to balance rest against effort, calmness against strain, quiet against turmoil,' says Dr. Josephine Rathbone, 'we would assure ourselves of joy in living and psychophysical health for life.' The psychologists believe that people who live dynamically without being too tense have four main attributes: first, rhythm in their activities with great swings in output and accomplishment, alternating with periods of repose; second, a sense of values which makes it possible to minimize effort and minimize strain: third, ability to reduce muscular tension in any part of the body consciously whenever desired; and fourth, a readiness to fall asleep at will.

"While these attributes may develop spontaneously to some extent in some persons, it is also possible to cultivate them in a measure. In order to aid such cultivation, ten tricks are presented which are believed to be useful in realizing relaxation. They are:

"1. Cut down on the intensity of your thinking half an hour before retiring. (Plan an excursion for the week-end, write a letter to a friend, filled with pleasant things you have been doing.)

"2. Take plenty of time to get ready for bed (arrange next morning's clothes, leisurely bathe, and so on.)

"3. If you like to read in bed choose non-fiction or a 'hard' book. Force your mind to grapple with cumbersome facts, bore it into unconditional surrender to sleep.

"4. Transplant your mind from fears and hates to a field which has interest without excitement (a new wardrobe, possibly).

"5. Make your mind hop from one idea to another. Just as the mind loses consciousness and sleep comes, thoughts become disjointed and scattered. (Start with some happy episode of childhood, for example.)

"6. To quiet the body, get rid of any pressure or pain. (Lighten weight of

Photo by L. J. Larson

Many people are sick because they have never learned to relax and rest.

extra sheets, blankets, covers, clothes.)

"7. Tepid bath without a rub-down. (Get into bed a little damp and chilly. As the body becomes warmed it becomes more and more comfortable. If during the night one becomes sleepless, throw back covers until body becomes uncomfortably chilly. Then when the covers are pulled up again, the body once more sinks into coziness.)

"8. Imitate the slow, deep, rhythmic breathing of sleep. (Helps to regulate the circulation and may ease the mind and emotions; also tensions in the abdomen.

"9. Relax the muscles completely.

"10. Get rested before trying to sleep. Get into bed an hour or more before your regular time for retiring. Do so night after night to build up reserve of rest and fall asleep without the old struggle.)

"The balance between what can be accomplished by education and practice and what is innate in producing relaxation and longevity is a delicate one. Physicians have long known that people with a low blood pressure, a low basal metabolic rate, a low pulse rate, and a low intake of food—if all of these are not too low—tend to live longer than those in whom these physical factors are at extremely high levels. Perhaps equally important is a low threshold for the sense of humour—a mental attitude which does not take life too seriously."

# The Greatest Medical Prescription

A DOCTOR who could advertise and guarantee that he had a prescription that would cure or prevent at least 75 per cent of all the diseases from which men suffer would be sure to have the whole world beating a path to his door.

Is there such a prescription? There is, and it is backed by many of the world's leading medical authorities. It is not a mystical hocus-pocus of magical words, but a down-to-earth, easily understood prescription that gives immediate results.

You can fill the prescription yourself in your own home. In fact, you are the only one who can fill it for yourself. Thousands of patients would find immediate relief and would save themselves millions of rupees in medical fees if they would but accept this simple remedy. I have talked to a large number of doctors about the prescription and have yet to find one who does not have faith in it, and who is not eager to have his patients accept it.

The prescription was first given about two thousand years ago by the most successful physician the world has ever known. Christ gave it to the blind man at Jericho: "Thy faith hath made thee whole." Mark 10:52.

Do not misunderstand me. I am not referring to faith healing. Certainly I believe that the God who made man in the first place can perform a miracle to restore his sight or cure his maladies when it is His will; but such healing is not our subject now. I am thinking only of the medically proved effects of mental conditions upon physical health.

The mind has an almost unbelievable influence upon the health of the body. Medical literature is replete with case histories of patients who make themselves ill by their mental states, and who may even commit suicide. To cite a few:

A husband whose wife had suicidal tendencies emptied all the bottles of poison around the house and filled them

with water. The wife drank part of the contents of one of these bottles and died in agony. An autopsy and an investigation of the "poison" bottle proved that she had taken no poison.

A rattlesnake struck at a man who was working on a fence. Trying to jump away, the man tore his leg on one of the barbs and thought that the snake had bitten him. When the doctor arrived, the patient was so near death that the doctor thought that it was too late—until he examined the wound. Upon being convinced that he had not been bitten, the man soon returned to normal. The swelling in his leg quickly vanished, and his heart resumed its regular beat.

A man whose doctor prescribed a cool bath objected violently, saying that he would have a chill and might die. The bath was given anyway. The man turned blue all over, had a violent chill, and almost died before he could be warmed up. He always insisted on taking a thermometer into the tub with him to test the water. The doctor had a thermometer altered so that the scale registered ten degrees higher than the actual temperature. The water temperature was lowered to that of the original cool bath, and the man, with his thermometer in hand, took his bath with no ill effects whatsoever.

The condition known as "shock" is caused by mental reaction, and in many cases it may kill a patient even though he has not received the slightest injury.

During the war, when opiates were not always available, medical corps men sometimes found that a saline solution containing no drugs seemed almost as effective as opiates in killing pain *if the patient thought he was getting an opiate.* Every doctor and nurse of any experience can cite cases of patients whose symptoms disappear when they are given pills or injections containing no drugs. Insomnia patients who cannot sleep a wink without their sleeping tablets often go to sleep when all they have received is a sugar pill which looks like a sleeping tablet.

One doctor at the Mayo Clinic declared that eight out of ten of his patients would get well without medical attention if they only thought they could.

Many investigators point out the fact that depressive mental states lower the body's resistance and invite decay and disease.

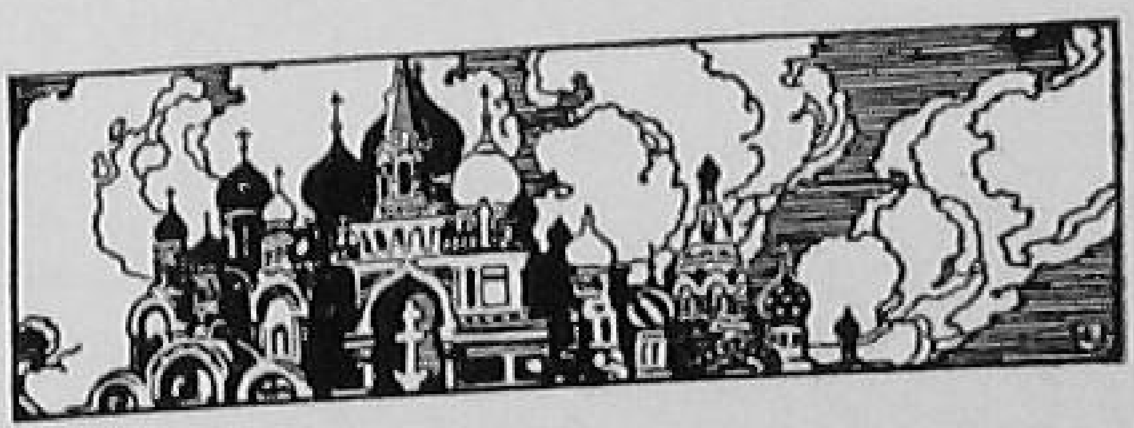
The remedy? Faith in God, in one's fellowmen, in one's self. But how does a person acquire this health-giving faith, this quiet trust, this stabilizing confidence? We can say with Paul in Romans 8:28: "We know that all things work together for good to them that love God," or with David in Psalm 91: "A thousand shall fall at thy side, and ten thousand at thy right hand; but it shall not

come nigh thee. . . . There shall no evil befall thee, neither shall any plague come nigh thy dwelling. For He shall give His angels charge over thee, to keep thee in all thy ways."

The answer is simple for those who are in real earnest about the matter. The promises are made to those *who love God,* and John repeatedly points out that obedience to the divine requirements is essential for anyone who truly loves God. Real, health-giving faith, then, can come only to those who are really the children of God—real Christians, not merely those who claim to be.

When a person walks close enough to God to "know that all things work together for good," he will no longer be afflicted with depressive mental states. Like Paul in the Philippian prison, he may find his back lacerated and his feet in the stocks, but still be giving praise to God for His blessings, and saying, "I *know* whom I have believed, and am persuaded that He is able to keep that which I have committed unto Him against that day." Such a Christian goes through the obstacles and retarding experiences of life as an army tank goes through a picket fence. Even when, with his body and resistance in the best possible condition, an occasional illness may come to him, he accepts it with quiet confidence in the future, knowing that God is still working out all things for his best good.

One of the greatest blessings such faith brings is health to the mind. Most cases of nervous breakdown would be prevented by faith in God. If more people would look to God in quiet confidence, what relief would come to overworked doctors and over-crowded hospitals! If they would but trust Him as a Father, what a difference it would make in the world! Let us accept the prescription given by Jesus Christ. "Thy faith hath made thee whole;" "All things work together for good to them that love God"!



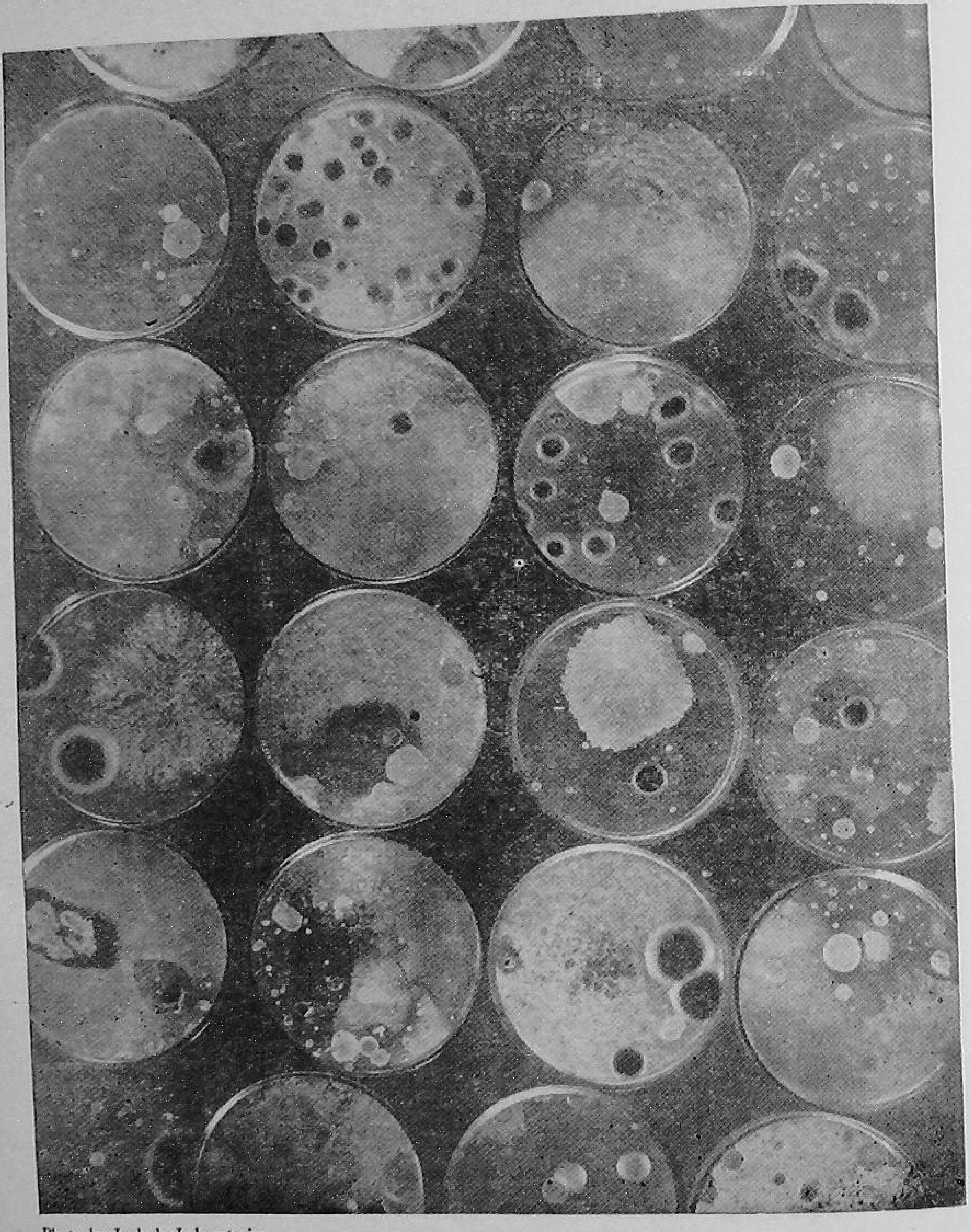


Photo by Lederle Laboratories

The great healing power God placed in such moulds as these from which aureomycin is produced, has only recently been discovered by man.

# The Healing Power of God

THE facts are before us; every doctor knows them. There is nothing new or doubtful about them. But every man must draw his own conclusion.

It seems to me that the conclusion we may draw is toward a greater confidence in life. However we may fall short, there is a gigantic healing power that fights on our side. Matthew Arnold defined God as "the power not of ourselves that makes for righteousness." There is a great power in ourselves, but not of our conscious selves, that makes for health. It works day and night, when we are asleep and when we are awake, when we obey the laws of life and when we disobey them. Its good-will falls like rain upon the just and upon the unjust.

A great healing power fights on our side, within our bodies, and wins most of our battles for us. When we look around at nature in the mountains, the forests, the plains, or the seashore, it is hard to find evidence of a power that cares about our welfare. Seen in that way, nature seems neutral or indifferent. But when we look at that portion of nature closest to us, our own bodies, we look at something different from neutrality, something with an extraordinary bias in our favour.

If it is true that the healing power of nature is so powerful, does this imply that we should have less concern for scientific medicine? Quite the opposite! Scientific medicine is the application of intelligence (also a part of nature) to reinforcing and supplementing the natural healing processes. Another way to put it is that, insofar as medicine is based on accurate knowledge and produces curative results, it is performing the will of God. God wills health and provides the healing forces to produce it. Scientific medicine guides, directs, supplements, limits, and extends the operation of these forces according to specific indi-

vidual need. The physician helps to prepare the conditions of healing but it is God who heals.

As we think about them, the facts here described are among the most important reasons in experience for believing in the goodness of God. God is not the same as nature; He is more than nature, and yet He works through nature. God has created the world, and He sustains it. Our bodies are a part of His creation and His plan. They reveal to us, much more intimately than "the starry heavens above," that God's sustaining care never slumbers; that it watches over us while we sleep; that it exerts in our bodies an intelligence which, through all the human devices of medicine and healing, we try to reinforce and supplement. God does not do all our work for us; He leaves undone enough to challenge our most intense energy. He helps those who help themselves, and some who do not, but He is never neutral in our life struggle.

If God's healing power works so powerfully in our bodies, does it work also, in the same way, in our minds? Does the healing power of God work for our mental health as well as for our physical health? The answer is yes. There is a "wisdom of the mind" just as there is a "wisdom of the body," going beyond our conscious awareness. No less than with the body, however, must the wisdom of the mind be reinforced by the work of human intelligence, as applied by educators, psychiatrists, psychologists, social workers, ministers, and others. But just as the physician works for health of the body by co-operating with the latent powers of healing in the body, so the physician of the soul works in co-operation with the unseen resources for the healing of the mind. Psychiatry, for example, does not interrupt the natural forces of healing; it reinforces, supplements, extends them, helping to cut away the equivalent of offending tissue so they can work. If mental surgery occasionally hurts, demands rest and treatment in bed, or requires long convalescence, that is no mark against it; for only so can the knowledge of science be properly applied to aiding the healing power of God to move as God intends it to move.

## HEALTH AND AWARENESS OF GOD

The problem of health and of regaining health when we are sick is basically the problem of establishing and maintaining a proper relationship with God —that God who has created us and who sustains us in the very cells and structure of our body, even when our thoughts are far from Him. His healing power is at work whether we are serene or full of apprehension, whether we have a sense of fellowship or are sunk in the depths of loneliness, whether we are living

creatively or are drifting, whether we have love in our hearts or resentment and bitterness. God's will and His healing power work in us whether we know it or not, whether we pay attention to it or not, whether we co-operate with it or fight against it.

If we do know God's healing power, if we do pay attention to it, a measurable change occurs. Let a man be deeply anxious, or lonely, or despairing, or bitter in his illness. Then let him really experience in his inmost awareness the consciousness that, all the time he has been anxious or lonely or despairing or bitter, the healing power of God has been trying to break through and bring him health and new life. He relaxes, not just on the surface, but deep inside. A power greater than himself, greater than his physician, is fighting, and has been fighting, and will go on fighting on his side. Something happens in his body as well as in his soul. The extra and unneeded secretions that his emotions have kicked up and that have held back the process of healing, begin to diminish. Exactly the same thing happens as when the surgeon cuts away offending tissue. The potential healing power was there all the time, but something got in the way and kept it from doing its work.

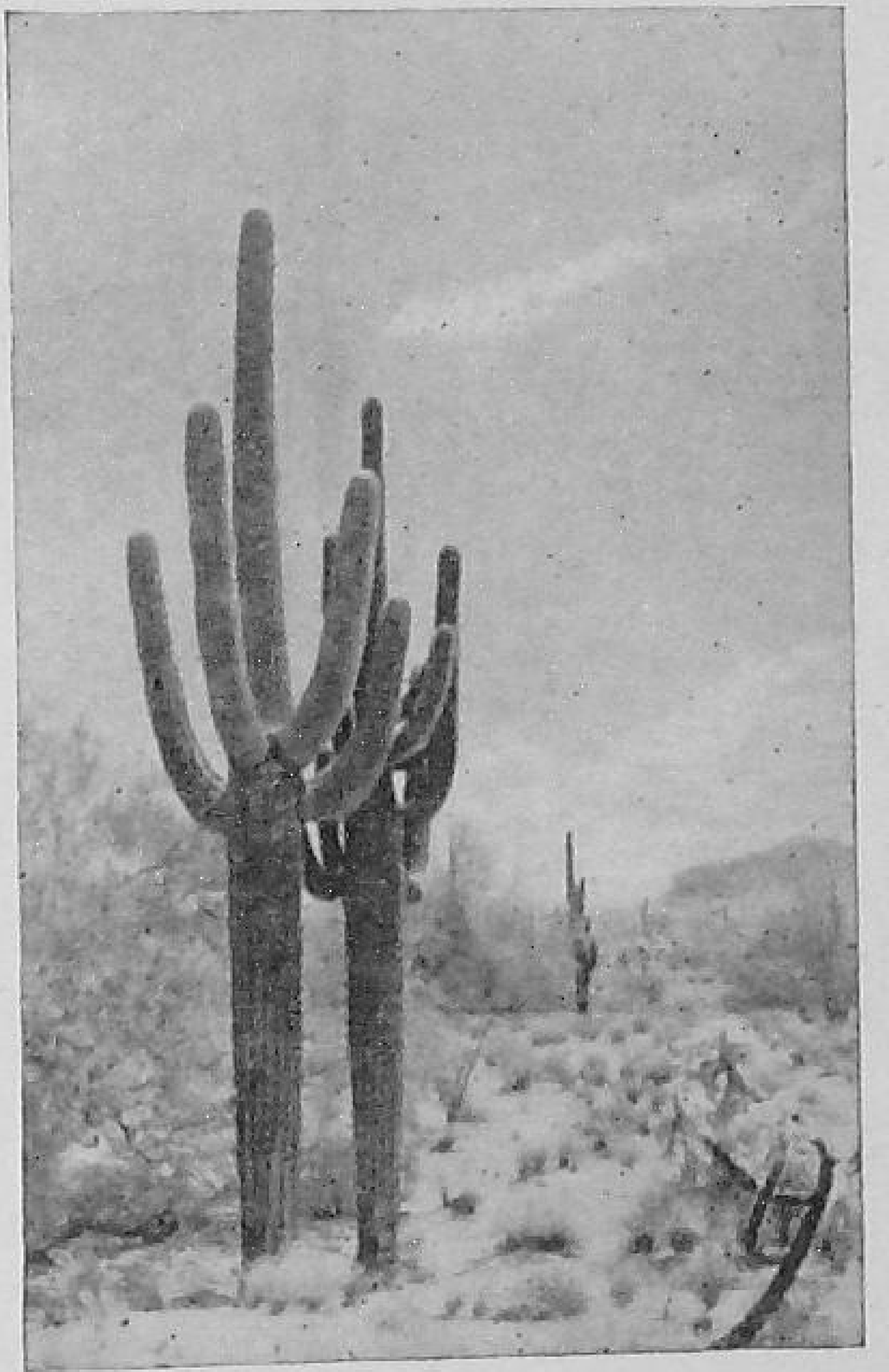


Photo by U. S. I. S.

God has placed healing power in nature.

The consciousness of God's healing power is thus itself an agent or instrument of that healing power, hand in hand with medicine, psychiatry, and all the other arts of healing based on scientific observation. He who glimpses anew the meaning of God's support of human life, even at the level of the human body, has found in truth a spiritual penicillin. It is not a cure-all; but in hand with other means of aiding the healing power of nature and of God, it can help bring health to those who are sick, and help to expand and enlarge that freedom of activity we call health in all of us.

Regardless of the malady, to be ill is to be a stranger in a strange land; to pass through lonely places of the spirit; to be hot, thirsty, naked, and in prison —a prison that is bounded by four walls, by pain, fever, helplessness, strange people and strange dreams, long days and endless nights. We may feel that God and man have deserted us, and that only the depths of hell itself are left to us. Then we *must* as Edna St. Vincent Millay has said, "split the sky in two, and let the face of God shine through." That face is there but it is we who must look.

### *PRAYER FOR HEALTH*

*O God, our Father,*
*In quietness and confidence we turn to Thee,*
*Thanking Thee for the joys of life and living;*
*Eternal Father, we pray for the return of health;*
*We rest in Thee: as a ship rests upon the sea,*
*As a house rests upon its strong foundation,*
*Knowing that Thou dost work to give us health of body, and courage of soul,*
*Through the doctor's knowledge, through the nurse's skill,*
*Through the minister's quietness and prayer,*
*Through the affection of loved ones,*
*Through food, and rest, and fresh air of hope;*
*We trust Thee, our Father, and we thank Thee for the health-giving forces within us.*
*And in that trust we are strengthened, in that confidence we are made whole.*
*Through Jesus Christ our Lord. Amen.*

* * *

The American Medical Association officially approves of the statement of Doctor C. Raimer Smith in an article in *Hygeia* that about 50 per cent of the patients who receive treatment have trouble that is of mental and spiritual origin.

* * *

The condition of the mind affects the health to a far greater degree than many realizé.... Courage, hope, faith, sympathy, love, promote health and prolong life. A contented mind, a cheerful spirit is health to the body and strength to the soul.—*Your Home and Health*, p. 190.

* * *

"I always make leisure time for things that are good; and...believe me, never a night goes by, be I ever so tired, but I read the Word of God before I go to bed."—General Douglas MacArthur.

* * *

Dr. Samuel McComb, of Boston, U.S.A., has truly said: "It is high time for the minister to realize that man is not a soul without a body, and it is also high time for the physician to realize that man is not a body without a soul."

* * *

"The best medicine which my practice has discovered is prayer. The exercise of prayer in those who habitually practise it must be regarded as the most adequate and normal of all the pacifiers of the mind and calmers of the nerves."—Dr. Hyslop, speaking before the British Medical Association.

* * *

Dr. Mayo, of the Mayo brothers' fame, said at one time: "The world needs religion. I have seen patients who were dead to all medical standards. We knew they could not live. But I have seen a minister come to the bedside of such a patient and do something for him that I could not do, although I had done everything professional in my power. But something touched some immortal spark in him, and in defiance of materialistic common sense he lived."

# How to Care for the Sick at Home

MANY times sickness has to be cared for in the home, and upon the mother falls most of this home care. Hence every woman does well to learn the simpler measures in home nursing, as various circumstances or conditions may call for nursing care. It is recognized that proper nursing care of the sick has much to do with determining recovery.

### The Room

The room and its furnishings have considerable influence on the patient. He may occupy a certain room for some time, and so has time perhaps to note every detail. Its location and furnishings are important. Good ventilation should be supplied without permitting draughts. Ventilation from an adjoining room may be necessary. Avoid all unnecessary noises, such as creaking and slamming doors, squeaky chairs, flapping curtains, etc.

Plain walls and soft shades are good. If possible, avoid wall paper with strange figures or detailed patterns. Provide a bed, dresser, bedside table, and two straight chairs. It would be desirable to add a screen, couch, footstool, and wall thermometer.

The attendant should wear washable dresses and aprons, and shoes with rubber heels. She should be cheerful, but not loud and boisterous, and always kind. She should be mindful of her own health.

### The Bed

A comfortable bed for the patient is a first need. An enamelled iron bed looks well, and can be easily cleaned. Finely woven wire springs that do not sag are best. If the springs do sag, they should be reinforced.

Hair mattresses are elastic, easy to clean, and do not absorb odours or get lumpy. Cotton felt mattresses are good. Clean the mattress with a vacuum cleaner or a whisk broom. Protect the mattress with a slip cover of unbleached

muslin, open at one end and tied at even intervals with tape.

Sheets should be a yard longer and wider than the mattress, so they can be tucked in all around, with a wide hem at the head and a narrow one at the foot. Fold a sheet, hem to hem, to make a draw-sheet with which to cover the rubber sheeting. Rubber sheeting may be had in forty-inch width. Have the rubber sheet one yard longer than the width of the mattress, with a half yard of canvas stitched on each end. Clean with water and soap and lay in the sun. When put away, roll on a pole to keep it from cracking, and cover to keep it clean. Oil cloth or the bottom of an old raincoat can be substituted for the rubber sheet. Blankets of part wool and part cotton are desirable as bed clothes, being of lighter weight than double blankets. Use spreads that are light in weight and easy to launder. A sheet is a suitable substitute for a spread on the sick bed.

### Making the Bed

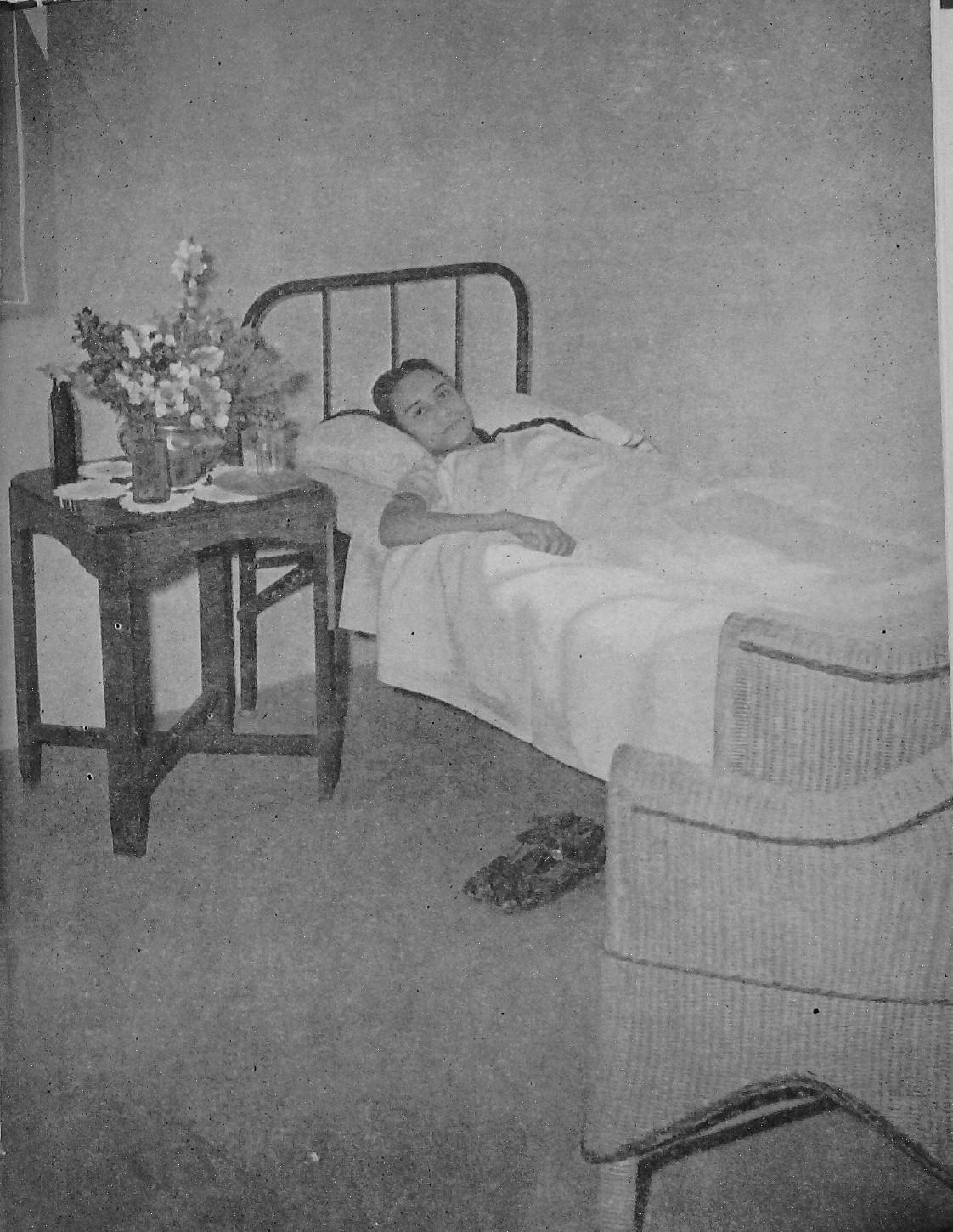
Have three sheets, one spread, two pillowslips, a rubber sheet, two blankets, and a mattress cover.

Turn the mattress end to end or side to side. Place lower sheet evenly on bed, wide hem at head, tuck sheet under mattress at head of bed, smooth out, and tuck sheet under mattress at foot of bed, squaring the corners at head and foot of bed, and tucking sides in well.

Place the rubber sheet crosswise on the bed, the upper edge a pillow's width from the top. Adjust drawsheet to cover completely the rubber sheet, open end toward the foot of the bed. Tuck both well under mattress. Place the wide hem of the top sheet even with the mattress at the head of the bed, unfold, and smooth down to foot of bed. Place the blanket or blankets with the upper edge half a pillow's width from the head end of mattress and free from wrinkles. Place the spread even with the mattress at the head of the bed, fold about six inches under the blankets, and fold the top sheet back over top of spread.

Tuck bedding in at foot of bed and square the corners. Place the pillows crosswise on the bed, and draw on pillowslips. Fit the corners of the pillow well into the corners of the slip. Do not hold the pillow between the teeth. Place pillows at top of bed, and second one a little higher than the first one.

In renewing the linen, place a chair beside the bed; loosen bed clothing to be renewed; remove pillows, taking off soiled slips; place pillows flat on the chair. Renew each piece of bedding separately by doubling the lower part toward the top and folding it a second time; place over back of chair. Brush the mattress; turn from foot to head. If necessary, wash bedstead with soap



and water; dust springs with cloth dipped in a little kerosene.

### The Bedpan

If the patient is unable to get up and go to the toilet, a bedpan is essential. It should fit the shape of the body and be easily cleaned.

Warm the bedpan by pouring warm water over the seat and then drying it. Have the patient lie on the back with knees flexed. Draw the night garment to the waist. With left hand under the patient's hips raise them while passing the pan with the right hand. The pan should be padded with a piece of canvas or towel. Use toilet paper and washcloth. Remove pan in same manner as when placing it. Do not empty pan without noting contents for reporting to the doctor. Flush pan with cold water into the contents, empty into toilet, rinse with cold water, and wash with warm soapsuds.

### Back Rest

A chair with a wide, flat back makes a good back rest. Place upside down, with the upper edge of back and front edge of seat resting on the mattress, with chair legs toward top of bed. Place a pillow lengthwise against back of chair, so that it reaches well down to the small of the back of the patient. Put second pillow on this under patient's shoulders. Have a smaller pillow for patient's head.

Roll a pillow and place under patient's knees to support them while patient is sitting up. If necessary, secure pillow in place by a strip of old sheet passed over pillow and ends tied to the bed rail. This will also prevent the patient from slipping down. A pillow or other brace at the feet can be used for this purpose.

### Bed Table

When able, the patient will prefer to sit up to eat. A home-made bed table can be made from a packing case, with the top and two sides removed. Cover with oil cloth or cretonne. Pockets may be placed in each end of covering of the table to hold reading matter, writing material, etc. A bed table can also be provided by using the leaf of a dining table placed across the bed on the backs of two chairs.

### Bed Cradle

If a part of the body is to be relieved from the weight of the bed clothes, a bed cradle may be used. One may be improvised by cutting a barrel hoop in two, crossing the halves at right angles, and tacking or tying together. Wrap with white cotton to keep it from scratching the patient. Put the cradle under the bedcovers.

### Bed Blocks

In the absence of a bed of hospital height, blocks of wood, 5 x 5 inches,

with a hollow in the top of each to fit the bedpost, may be used. Raising the bed is a great help in caring for the patient, a help to both patient and nurse.

### Relieving Pressure

The skin of a sick person is easily irritated by crumbs in the bed and by wrinkles in the lower sheet. Care should be taken to avoid these. Certain parts of the body rest heavily on the bed, such as the hips, end of spine, heels, shoulders, and elbows.

The patient's position should be changed occasionally to prevent bedsores on these pressure parts. The back should be rubbed with alcohol twice a day. Avoid carelessly given friction to tender parts when giving or removing the bedpan.

A rubber air ring will relieve pressure over the buttocks. Use small rings of cotton to protect the elbows, heels, and shoulder blades. Make the rings of cotton and bandage, in doughnut shape.

### The Patient's Toilet

Attention to the toilet is as important to the sick person as to the well, or even more so. In sickness the mouth and teeth require more than ordinary care. The attention given the patient's mouth is a pretty good indication of the general care given. Brush the patient's teeth before breakfast and after each meal.

Provide a towel, toothbrush, glass of mouth wash, tooth paste or other cleanser, and a small flat basin. If the patient is unable to brush his own teeth, the attendant should do it. For the very sick patient use applicators dipped in mouth wash instead of a toothbrush.

### The Bed Bath

The bed bath should be given each day unless the doctor orders otherwise. It has several purposes; namely, to cleanse the body; to refresh the patient; to improve the blood circulation; to give a little exercise; to produce sweating, thus reducing fever; and to relieve from bed fatigue.

The bed bath is usually given in the morning, though some prefer it at night. In some cases it may be given at both morning and night. It should not be given too soon after eating, an hour later at least, lest it interfere with digestion.

To give the bed bath requires the following articles: Two wash basins, one half full of water at 102°-108°, the other half full of water at 75°-80°; face towel, three Turkish towels; a slop jar, unless bathroom is near; and two bath blankets.

See that the room is at the proper temperature, and that there are no

The bed bath

draughts. Have all necessary articles for giving the bath at hand. Remove and fold the spread and top sheet, leaving one blanket over the patient. Move the patient to near edge of bed. Place towels to protect bedding.

First remove the night garments. Flex patient's knees and draw garment up to the hips; raise or let the patient raise the hips so garment can be drawn above the waist. Raising the head and shoulders with one arm, use the other arm to draw the garment up to the neck. Remove sleeve nearest you, drawing garment off the head and then off the other arm.

Place the face towel across patient's chest. Wet the wash cloth thoroughly, and wind it around the hand so that it will not drip. First, wash the face, neck, and ears with warm water, and dry them thoroughly. Do not use soap on the patient's face without asking if it is desired. Apply soap to wash

The flu, common colds, and chills are often helped by giving the patient a hot foot bath in bed. A newspaper under the vessel will help keep the bed dry. A cold cloth on the forehead will make the patient more comfortable.

cloth; support arm of patient with left hand and wash arm to wrist and hand; finish with one application of cold; fold the arm in protective towel and dry; finish with dry towel. In drying, be sure to dry thoroughly between the fingers. Cover the arm, and then proceed with the other arm.

With both arms protected with corners of blanket tucked in well under the shoulders, expose the chest and abdomen. Tuck protecting towels down each side. Tuck end of one of the three towels under blanket at lower part of abdomen and fold back over blanket. Begin bathing with the chest, going well over the shoulders and coming down over abdomen with firm but gentle rotary movement. Make two applications with warm water, using soap freely, and a third application with cool water. Pull towel up over chest and abdomen, drying thoroughly. Cover with blanket.

Change water in both basins, make changes several times if necessary to keep the bath at uniform temperature. Dry each part thoroughly before washing the next. Special attention should be given to the armpits and navel.

Uncover one leg, tucking blanket in well around groin, protecting the patient. Place protecting towel over and around the leg. Flex the knee; be-

gin with the knee, making three applications of soap and water on the upper leg; finish with cool water and dry with towel. Wash from knee to foot, giving special attention to toes. Place foot in basin of warm water; remove and finish with cool water. Dry with third towel, giving particular attention to drying between the toes. Remove towels and proceed with other leg and foot in the same manner. If conditions are favourable, the entire leg and foot may be bathed in the one operation before drying.

Turn patient on face, turning from you. Protect arms with blanket, tucking well over shoulders. Place protecting towels as for chest and abdomen. Begin at shoulders, working down with firm rotary strokes. Finish with cool water; dry with towel.

Have patient turn over on back, slip one towel under hips; if patient is able, let him finish bath. Remove working blankets; make patient comfortable by changing bed.

### Combing the Hair

The hair of the patient should have proper attention every day. Long hair, if neglected, becomes tangled and matted in a very short time. Place a towel to protect the pillow. Part the hair in the middle from forehead to nape of neck, drawing to each side. Holding the strand firmly in one hand, begin combing the ends. After combing and brushing, braid the hair in two braids, beginning near the ears. Vaseline or alcohol will help in removing tangles. If the hair is too badly tangled, comb and braid a part at a time, so as not to tire the patient.

### Small Hints to Big Comfort

Take pains to avoid straining the patient's eyes with bad lighting. He should not directly face a window; if possible, the light should come over the left shoulder. See that light is not reflected into the patient's face from a mirror, the glass in a picture frame, a highly polished door, or even an object outside the window. But do not prevent the patient's seeing out by turning the head; the sight of the sky, a treetop, or a distant hill has healing in it.

The lips chap easily from fever. A "white lipstick" on the bedside table for the patient to use at will is a comfort.

Some kind of call signal is necessary. A spoon in an empty glass is good. Let it be where the patient can reach it—not shoved a few inches beyond fingertips. It goes without saying that no patient should be forced to shout his needs to another room.

# A Few Home Treatments

NATURE prefers her own remedies, such as pure air, sunlight, rest, good food, water, suitable exercise. One of the most powerful and effective curative agencies is water. Its use in the treatment of disease is known as hydrotherapy, a form of treatment now well-recognized by the medical world. It is a system of treatment readily available in some form in almost any home.

In its various forms, liquids, solid, and vapour, and its many different temperatures, water adapts itself to numerous methods of application. Very definite and positive results may be obtained, some of which are impossible to obtain by any other means. Its proper use requires some skill; and the more skill, the wider will be the effective use of this remarkable remedial agency.

It should be remembered, however, that the definite and positive effects of water treatment may be harmful as well as helpful. No unskilled person should undertake to administer treatments which are complicated or not properly understood. Such procedure might involve danger to the patient. It is better to do nothing for a patient than to do that which may be dangerous to him. We must not run risks with the sick.

Some of the most useful water treatments are very simple, and may be learned by any one. In fact, every person should know how to use these simpler procedures. Such knowledge may be of considerable help in the home, especially in time of epidemic. While the physician discourages any attempt to "doctor" on the part of the layman, he will appreciate the help that can be given by one who is fairly intelligent in the administration of some of the simpler measures of water treatment.

The following are among these simpler water treatments that can be given in the home and by the average person. While simple in form, they are

among the most effective measures, and may prove of considerable value at times in affording ready relief in suffering.

### THE FOMENTATION

The fomentation is the application of moist heat to local areas of the body. It is commonly applied by means of cloths wrung out of boiling water. The object is to apply moist heat at as high a temperature as can be borne. Good fomentation cloths can be made by cutting a half-wool, half-cotton single blanket in four pieces. Use two pieces for the wet and two for the dry cloths. Other materials may be used—old underwear, an old woollen shawl, or towels.

Have boiling water in a vessel deep enough to entirely cover the cloth, excepting the two ends by which to hold the cloth and wring it. Spread one of the dry cloths on a smooth surface. Fold the wet cloth the shape of the area to be treated, making it a few inches larger than the part treated. Immediately on wringing from the boiling water, quickly untwist the cloth and fold within the dry one. If it is necessary to carry the fomentation any distance, double it together to keep it as hot as possible.

The part treated should be covered with a dry towel. Apply the fomentation and cover it with a towel to retain the heat. If too hot to be borne comfortably, lift up the cloth once or twice. Apply a cool compress to the head, and renew frequently during the treatment.

Bring in the second fomentation. Take off the first one, and remove the moisture from the skin with a towel. Apply the second fomentation.

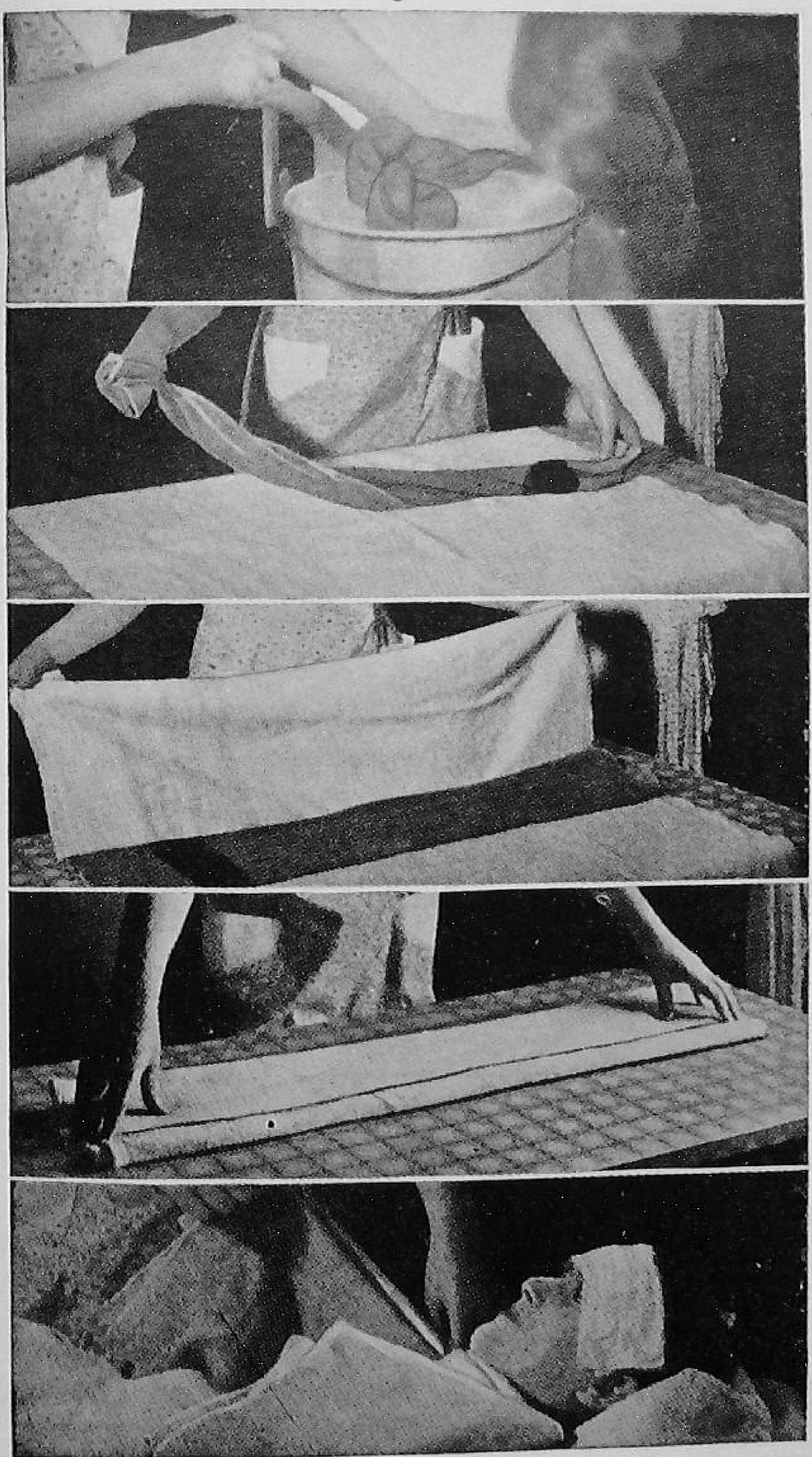
Make three applications, changing as soon as the fomentation begins to cool or to feel comfortable. After the last application, cool the part with a wet hand rub or a cold compress.

The patient's feet should be kept warm during the treatment. All changes should be made quickly, and the part treated should not be left exposed. In treating the very old, very young, paralyzed, or otherwise helpless person, use special caution not to burn or scald the patient. Bony prominences are particularly susceptible to burning.

The fomentation is one of the best means for allaying pain. It should not be used in a case that may prove to be appendicitis.

### THE HOT FOOT BATH

The hot foot bath is very valuable for breaking up a cold, in relieving a headache, in dispelling chilliness, and is sometimes effective in insomnia, by drawing the blood from the head to the extremities. It can be given in bed, in



The method of preparing and applying the fomentation.

1. To wring dry, twist into a tight knot.

2. Unroll and fold to desired size.

3. Place on a dry towel.

4. Fold towel over.

5. Place another dry towel over area to be treated, then apply fomentation.

Photo by S. P. A.

The hot foot bath.

which case the bed should be protected with newspapers, oilcloth, or a rubber sheet. Throw a cover over the knees and legs during the treatment.

Have a vessel deep and large enough to hold both feet comfortably, the water reaching at least to the ankles. The temperature of the bath should be about 105°, and may be raised as high as can be borne by gradually adding hot water. If given for more than five minutes, apply a cold compress to the head or neck or both. The foot bath may be for thirty minutes. On removing the feet from the bath, apply cold water and thoroughly dry them.

## THE HOT LEG BATH

The hot leg bath is given much as is the foot bath, except that a deeper receptacle is used, letting the water reach well up to the knees. Seat the patient on a stool two or three inches higher than the receptacle under the knees. Begin the bath at a temperature of 103° and gradually raise it as high as can be borne. Cool and dry the legs.

## THE SITZ BATH

The hot sitz bath is excellent for the relief of local inflammation, for pelvic, rectal, or abdominal pains, and to overcome retention of urine. It may also be used to produce perspiration.

In the absence of the regular sitz tub, an ordinary wash-tub may be used, raising one side a few inches by placing under it a block of wood. Give a hot foot bath at the same time. Place a towel over the edge of the tub at the back for the patient to lean against. If the bath is prolonged, apply cold to the head.

For producing perspiration, begin the bath at 100° gradually adding hot water till it is as hot as can be borne. Draw about the patient, including the tub and pail, a blanket or sheet. Keep a cold wet towel on the head. Drinking hot water will facilitate sweating. The bath may be prolonged from ten to

thirty minutes, but should be stopped if the patient complains of faintness, especially if attended with shortness of breath.

Conclude the bath with cool water, removing some of the hot water if necessary. Protect the patient from draughts and chilling. See that the patient is properly cooled and carefully dried.

## The Sponge Bath

The cool sponge bath is a very valuable means of reducing fever. A sponge is not necessary, in fact, is not very frequently used. The water may be applied with the bare hands or with a cloth. When this bath is given to reduce body temperature, the water should be about 60° or lower. The sponge bath nearly always follows any treatment that causes perspiration.

Provide a basin of water and several towels. The patient is wholly undressed, but covered with bedclothing. Treat only a part of the body at a time. Place towels to protect the bedding. Expose an arm, apply the cold water, and dry. Follow with the other arm, then the chest and abdomen, the legs, and last the back. It takes from twenty to thirty minutes to give a sponge bath. It may be given several times a day if needed, and if it does not weary the patient or make him nervous.

Photo by L. J. Larson

Applying a heating compress to the throat.

## The Heating Compress

This is a compress consisting of several layers of cheese-cloth or towelling, wrung out of cold water, and covered with a dry cloth. A piece of rubber cloth or even common oil cloth is still better as a covering. The compress is left on until it begins to get warm, when it is removed. It may be left on all night. The dry covering should extend beyond the wet cloth enough to permit pinning tightly so as to exclude all air.

## The Enema

Most people know something of the use of the enema, or irrigation of the colon by water. The practice of flushing the colon has its dangers when carried to excess. A certain advocate of colon flushing by large quantities of water has had quite a following, and quite a number of people are suffering with a distended and inactive colon as the result. The distention has been so pronounced that the colon has not been able to return to normal tone.

It is not natural that the bowels should depend upon irrigation for their functioning. It may become an easy matter to accustom them to it, but it is also possible in most cases to train the bowels to normal functioning. A regulated dietary and proper bowel habits are by far the better course to follow.

The water should be introduced gradually and with slight force. The enema can or syringe should be hung high enough so the fall of the water is two or three feet. If the utensil is hung too high, the force of the fall of the water will make it more difficult for the patient to retain the water.

The peristaltic pains caused by the injection of the water excite desire to relieve the bowels. This may be overcome by stopping the flow of water by pinching the rubber tube, holding it till the desire to evacuate is passed, when more water may be introduced. Thus there may be introduced a larger quantity of water than the patient thinks possible to retain. Withdraw the tube carefully. If it is desired to retain the water for a time, the pressure of a towel against the anus will be helpful.

It is important that the bowel be well cleansed when an enema is used. The warm water introduced dissolves the retained mass of matter, and when in solution the poisons are readily absorbed. Unless a thorough cleansing is secured, the enema may be productive of headache or other unpleasant effects. Repeated injections may be necessary in order to secure a thorough cleansing.

For mere mechanical effects the temperature of the enema should be about that of the body, 98° F. Good results may be obtained and a smaller quantity of water will suffice if the temperature of the water is 70°. Only enough water should be used at any time to accomplish the desired results. Three to four pints of water should be the limit.

A small quantity of cold water can be safely used, half a pint or a pint usually answering the purpose. Cold water gives tone to the bowel tissues, while hot or warm water relaxes them. The warm water enema should be followed by a small cool enema at a temperature of 65° or 70°.

It is because of the relaxation of the bowel tissues caused by the higher

temperatures that the warm enema gradually loses its efficacy. The tissue tone is lessened more and more each time the enema is used, until the bowel becomes permanently relaxed or stretched.

The cool enema is useful for reducing the body temperatures in case of fever. When given for this purpose, the water should be retained as long as possible, the temperature ranging from 70° to 80°. If given colder, it will be more difficult to retain the water because of the stimulating effect of the cold.

The cold enema is valuable in typhoid fever. It helps to reduce the temperature and to keep the intestinal tract cleansed. The effect on the eliminative organs, liver and kidneys, is favourable. The lower the temperature possible, the smaller the amount of water required; it need not be lower than 70°.

The hot enema, 103° to 110°, is valuable for the relief of pain in the lower bowel, in diarrhoea and dysentery, for irritation or pain in the rectum, and when there is much gas in the bowels. At a higher temperature, 110° to 120°, it may be used to relieve colic, pelvic congestion, and an inflammatory condition of the pelvis.

When a special colon cleansing is needed, as in the case of long retention of fæcal matter, it is desirable to introduce the water as high up as possible. The knee-chest position (patient on knees, with chest nearly level with knees) will facilitate this. Another position favourable to such treatment is lying on the left side, with the knees well drawn up. The water should be introduced slowly. A larger quantity than otherwise may thus be taken without distending the colon, as the water finds its way the full length of the colon, or large bowel.

This high enema, or coloclyster, as it is called, may afford considerable relief from distressing symptoms caused by the absorption of poisons from the mass of putrefying material. A state of chronic auto-intoxication may be produced by the accumulation of body wastes. It may be surprising to see how much can be brought away by a thorough cleansing as suggested.

Avoid introducing air into the bowels when giving the enema. Allow a small quantity of water to run out of the tube before inserting it, to permit the escape of air. This will also allow the escape of water in the tube, which will probably be of a lower temperature than the water in the container. Lubricate the hard rubber rectal tube with vaseline before inserting it.

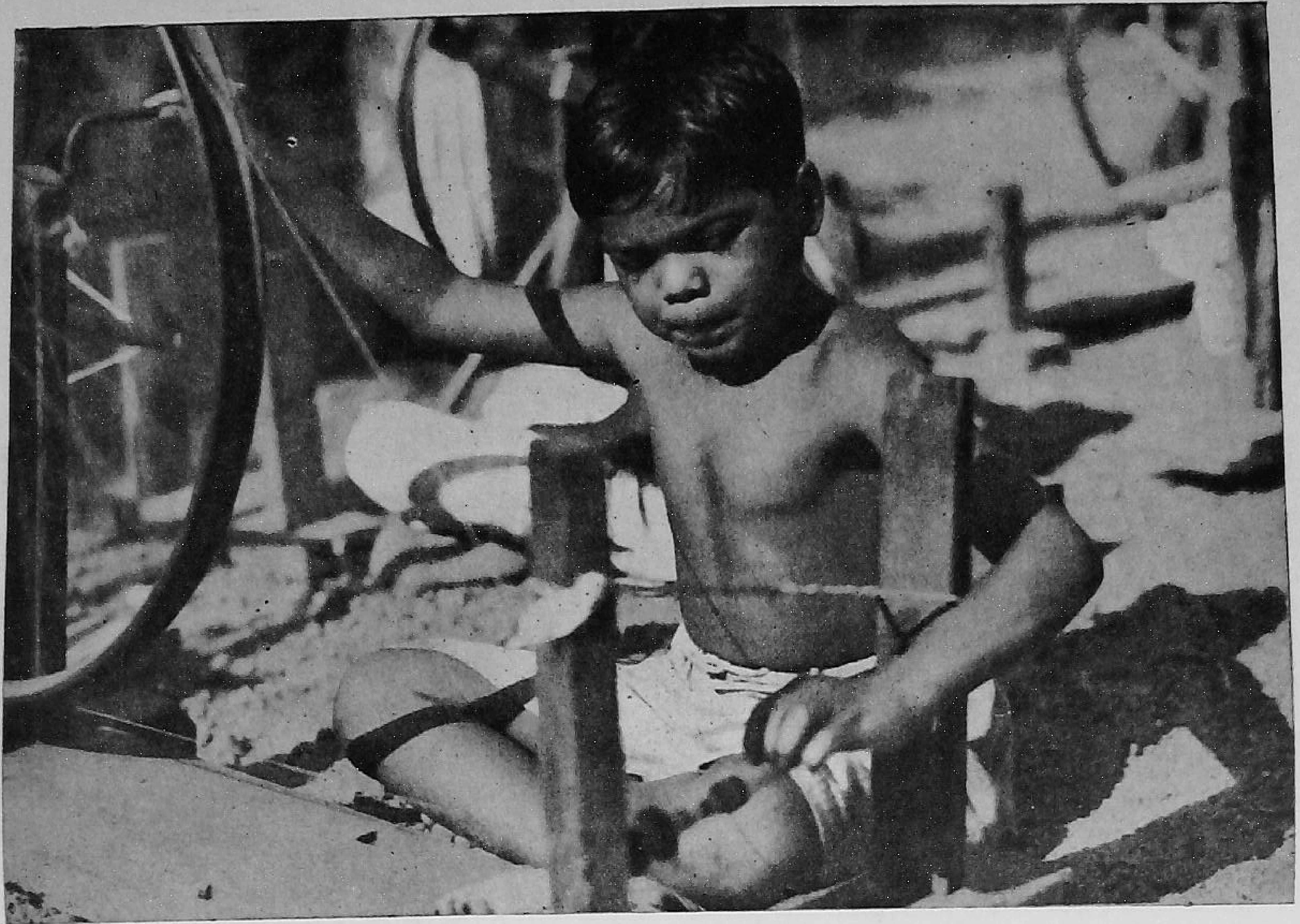


Photo by H. R. Ferger

Accidents can happen anywhere. Be careful!

# SYMPTOMS AND TREATMENT OF ACUTE POISONING

### Acetanilid, Antipyrin, Acetphenetidin (Phenacetin)

SYMPTOMS: Vomiting (sometimes). Face, blue coloured. Skin: cold; profuse sweat; sometimes rash simulating measles, scarlatina, or pemphigus. Collapse; feeble and irregular pulse; slow respiration.

ANTIDOTES AND TREATMENT: Irrigation or emetic. External heat; recumbent position. Caffeine, digitalis. Carbon dioxide-oxygen inhalation, if needed.

### Alcohol (Ethyl Alcohol)

SYMPTOMS: Failure of muscle co-ordination; cramps, coma, decreased respiration. Abolition of the superficial and deep reflexes.

ANTIDOTES AND TREATMENT: Gastric irrigation. Coffee enema. Carbon dioxide-oxygen inhalation. External heat. Aromatic spirits of ammonia, caffeine or atropine.

### Alkalies, Fixed and Caustic (Sodium and Potassum Hydroxide—Lye), Sodium Carbonate (Washing Soda)

SYMPTOMS: Burning pain from mouth to stomach; difficulty in swallowing; sloughed tissues in mouth; vomiting and purging of mucus and blood. Collapse; skin cold and clammy; pulse feeble; anxious countenance; rapid exhaustion; laboured breathing. Convulsions. Unconsciousness or coma.

ANTIDOTES AND TREATMENT: Do not use stomach tube! Give from 100 to 500 cc. of 0.5 per cent hydrochloric acid. Eight ounces of olive oil by mouth. Demulcents such as gelatine, acacia, or flour in water. Caffeine or digitan hypodermically, if necessary. External heat.

### Arsenic

SYMPTOMS: Symptoms usually appear in from a quarter of an hour to one hour. Vomiting profuse, painful diarrhœa; thirst; sense of constriction in throat, rendering swallowing difficult; blue-coloured face; coma.

ANTIDOTES AND TREATMENT: Abundant gastric irrigation with warm water. External heat. Opiate for diarrhœa and colic. Infusion of solution of sodium chloride containing sodium bicarbonate (5 per cent), if necessary. Milk diet. Treat patient as potential nephritic patient.

### Atropine, Belladonna

SYMPTOMS: Dryness of mouth. Difficulty in swallowing and articulation; thirst. Skin flushed. Temperature raised. Pulse quick. Pupils widely dilated. Purging. Delirium.

ANTIDOTES AND TREATMENT: Purified animal charcoal as antidote (2 tablespoonfuls in 250 cc. of water). Evacuation of stomach. Caffeine. Potassium permanganate in 1:1,000 solution, 250 cc.; irrigation with the same preparation. Catheterization if necessary. If excitation persists, barbital or paraldehyde. Physostigmine.

### Cantharides

SYMPTOMS: Burning pain in throat and stomach; difficulty in swallowing. Vomiting and diarrhœa; mucus and blood may contain shining particles of the powder. Salivation and swelling of the salivary glands. Burning in urethra; frequent urination. Urine contains albumin, casts, and blood. Pulse weak and slow; collapse.

ANTIDOTES AND TREATMENT: Gastric irrigation; mucilaginous drinks; opiate for pain. No oil by mouth. Treat as for potential nephritis (alkalies and milk diet).

### Digitalis

SYMPTOMS: Vomiting; diarrhœa. Slow pulse; irregular heart-beat. Lassitude; muscular and sensory derangements.

ANTIDOTES AND TREATMENT: Gastric irrigation with potassium permanganate 0.1 per cent (1:1,000) or tannic acid, 1 per cent. Horizontal position. External heat. Atropine hypodermically. Quinidine for irregular heart-beat.

### Ergot

Symptoms: Pale skin, small and rapid pulse, constricted arteries. Hallucinations. Blueness of the finger-tips and toes. Sensory disturbances. Ascending gangrene of the extremities.

Antidotes and Treatment: Gastric irrigation in acute poisoning; withdrawal of administration of ergot. Nitrites. Warm room. Periodic inhalation of carbon dioxide and oxygen.

### Fluoride (Roach and Insect Powders)

Symptoms: Nausea and vomiting; burning, cramp-like abdominal pains; diarrhœa. Sometimes tremors or convulsions. Grayish-blueness of the skin. Urine and blood show presence of fluoride.

Antidotes and Treatment: Copious gastric irrigation with limewater or weak calcium chloride solution. Calcium gluconate intra-muscularly, or calcium chloride, 10 cc. of 10 per cent in water, intravenously. Digitan hypodermically; artificial respiration, if necessary. External heat.

### Iodine

Symptoms: Pain and heat in throat and stomach. Vomiting and purging, vomitus being yellow or blue if starchy matter is present in the stomach. Stools may contain blood. Intense thirst. Giddiness, faintness and convulsions.

Antidotes and Treatment: Sodium thiosulphate by mouth (1 to 10 gm. in water) as an antidote. Then irrigation with 1 per cent sodium thiosulphate. Later, thin starch paste or flour soup. External heat; camphor oil, caffeine or digitan hypodermically, if necessary.

### Morphine, Opium

Symptoms: Coma, gradual in onset. Symmetrical pinpoint pupils that dilate terminally. Respirations slow and shallow. Body cold. Blue-coloured skin; convulsions.

Antidotes and Treatment: Potassium permanganate 0.1 per cent (1:1,000), 250 cc. by mouth. Gastric irrigation with some solution of potassium permanganate. Black coffee. Try to keep the patient awake by suggestion. Carbon dioxide-oxygen inhalation. Artificial respiration, if necessary. External heat. Caffeine or atropine hypodermically, if respiration fails to improve.

### Phenols (Carbolic Acid, Lysol, Cresols, "Sheep-Dip")

Symptoms: Characteristic odour present. Burning sensation in mouth and throat; burns on lips and in mouth; nausea and vomiting. Abdominal pain. Faintness; collapse; pulse slow and weak; face livid; cold sweat; respiration depressed; unconsciousness. Coma. Urine scanty with smoky colour.

Antidotes and Treatment: Gastric irrigation with 10 per cent ethyl alcohol in water, 1 quart; continuous irrigation with warm water. Infusion of physiological salt solution; epinephrine intravenously or intracardially. Caffeine or digitan hypodermically. External heat. Artificial respiration if necessary. Later treatment same as for after-effects of corrosives.

### Quinine and Quinidine

Symptoms: Ringing in ears, disturbed vision, abnormal intolerance of light. (Later deafness and blindness.) Nausea; Vomiting. Faintness. Difficulty of speech. Drowsiness; unconsciousness, alternating with delirium and coma. Pulse slow and feeble. Sometimes convulsions.

Antidotes and Treatment: Tannic acid by mouth. Gastric irrigation with potassium permanganate 0.1 per cent (1:1,000). Epinephrine intravenously or intracardially, if necessary. Caffeine or digitan hypodermically. If excitation persists, barbital by mouth.

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# WHAT YOU OUGHT TO KNOW ABOUT COMMUNICABLE DISEASES

JOSEPH T. MOSSBERGER, M.D.

| From Infection to Appearance | Symptoms | How Transmitted | Contagion Period | Control | Remarks |
|---|---|---|---|---|---|
| | | **CHICKEN POX** | | | |
| 14-16 days | Fever about 24 hrs. Then eruption; raised red spots in all stages of eruption. | Person to person by articles soiled by discharge. | Until scabs have disappeared. | Exclusion of patient from school and non-immune persons. | Usually a minor infection. |
| | | **DIPHTHERIA** | | | |
| Usually 2-5 days | Early sore throat and fever of 101-104°F. Later membrane over throat and extreme prostration. | Direct contact with affected person. Indirectly occasionally by articles soiled with discharge or by infected milk. | Until virus bacilli have disappeared from the secretions, about four weeks in 95 per cent of cases. | Immunization of school children, quarantine of affected persons till throat cultures are negative. Immunization of exposed persons. | Pasteurization of milk. Testing exposed persons with Schick test. Serious complication is cardiac failure and post-diphtheric paralysis. |
| | | **MEASLES** | | | |
| 10-11 days | Fever with watery, inflamed eyes, running nose, and often a hoarse cough. Small white spots on mucous membrane of mouth. Koplik spots. Rash about third day. | Directly from person to person and indirectly by articles soiled by discharges from patient. | From the time of beginning symptoms till cessation of abnormal secretions. From 9-14 days. | Quarantine of exposed persons from eighth to fourteenth day. Use of Convalescent serum to protect exposed persons. | Frequent examination of exposed persons is helpful in isolating those affected. Serious complication is pneumonia. |
| | | **MUMPS** | | | |
| 14-21 days | Fever, pain, and swelling region at angle of jaw. Pain on opening mouth. | By direct contact and from articles soiled with discharge. | Until swollen gland has returned to normal. | Separation of patient from non-immune persons. | Patient should remain in bed while there is fever and much swelling. |
| | | **INFANTILE PARALYSIS** | | | |
| 6-15 days | Vomiting, fever not over 103°. Headache and irritability, after first day stiffness of neck, spine, and extremities. | By direct contact or from a carrier of the germs or by articles soiled by a patient. | Usually not more than 21 days. | Isolation of all affected persons, quarantine of exposed persons 14 days. | Search for and isolation of sick children during epidemics, pending diagnosis. |
| | | **SCARLET FEVER** | | | |
| 2-7 days | Sudden onset with sore throat, often vomiting, prostration, and fever. Fine rash in 24-36 hours. | Direct contact or by contaminated articles. May be spread by milk. | Three weeks from onset of disease and until all abnormal discharges have stopped. | Quarantine and isolation of affected patients. Quarantine of exposed persons for 7 days. Use of Dick test in determining susceptibles and immunization with scarlet fever toxin. | Pasteurization of milk important. In schools or institutions immunization of exposed children may be best. Serious complication is nephritis. |
| | | **SMALLPOX** | | | |
| 10-14 days | Severe headache, backache, vomiting, fever. Rash usually on fourth day. Bright red spots all in same stage of eruption. | Direct contact or from articles soiled with discharges from lesions. May be carried by flies. | From first symptoms to disappearance of all crusts. | Quarantine. Isolation of all exposed persons till vaccination has taken effect. | Vaccination is a good control. It is well to do this at six months of age. |
| | | **WHOOPING COUGH** | | | |
| 7-14 days | Begins similarly to bronchitis, with mild cough. Later, spasms of coughing with "whooping" in about two weeks. Cough often ends with vomiting. | Direct by discharge from mouth and nose of affected persons. | 5-6 weeks. | Exclusion of patient from school and public places. | Danger of association with those having paroxysmal cough of this disease. |

# *First-Aid Measures*

### Poisoning

CALL A DOCTOR

Try to find out what kind of poison has been taken, as different poisons call for different remedies.

If phenol or any strong and corrosive acid or alkali has been taken, do not try to make the patient vomit, do not use a stomach tube, and, after suitable remedies have been given, give a stimulant such as strong coffee or a teaspoonful of aromatic spirits of ammonia in a glass of water.

For *phenol,* or *carbolic acid,* poisoning, give Epsom or Glauber's salts. Follow with soothing drinks of milk or of milk and eggs beaten up together. Beaten white of egg is especially recommended. Alcohol should not be given internally for this poisoning, since it hastens the absorption from the stomach and small intestine.

For sulphuric, nitric, hydrochloric, or other strong acid poisoning, give milk and white of egg freely, and have the patient slowly sip a solution of baking soda in water. If the soda is taken too rapidly dangerous gas pressure may be set up in the stomach.

For poisoning with *strong alkalies,* give milk, white of egg, vinegar, lemon juice, and olive oil or any oil used for cooking.

For lysol poisoning, give Epsom or Glauber's salts, milk, and white of egg.

For any type of irritant poison, arsenic, bichloride of mercury, strychnine, *et cetera,* or any sedative poison such as opium, morphine, laudanum, acetanilide, *et cetera,* empty the stomach by emetic, stomach tube, or both. A good emetic is two teaspoonfuls of mustard flour in one pint of lukewarm water. Four teaspoonfuls of common salt may be used in place of the mustard flour.

If the kind of poison cannot be determined, give white of eggs, milk, and strong coffee freely. Milk is useful

in case of almost any poison, and can do no harm.

Keep the patient warm and well covered, to prevent shock.

Have all poison containers plainly marked, and kept out of reach of children. To mark bottles, push pins or needles through the sides of the cork or paste rough sandpaper on the cork or on the bottle. Read all labels at least twice before giving a dose of medicine.

### FAINTING

Place the patient flat on his back with the head slightly lower than the feet.

Give him all the *fresh air* possible.

If he can swallow, give him a stimulant, such as half a teaspoonful of aromatic spirits of ammonia in half a glass of water, pouring a few drops at a time into his mouth.

Smelling salts, aromatic ammonia inhaled from a handkerchief, fanning, bathing the face with cold water, or gently slapping it, may be used to stimulate circulation.

### PARALYSIS OR APOPLEXY
(Known Also as Stroke)

SEND FOR A PHYSICIAN AT ONCE.

Place the patient quietly in bed, laying him on one side with his head slightly raised.

Loosen his clothing, especially any about the neck.

Throw open all the windows in the room.

Apply an ice cap or a cold compress to his head and hot-water bottles to his feet.

Do not try to make him swallow anything.

### DROWNING

CALL A DOCTOR.

Loosen all tight clothing.

Turn the patient on his belly and straddle his body. Put your arms under his belly and try to lift him. This forces water out of his stomach, and permits it to drain from the lungs and windpipe.

After the water has drained out, put him flat on his belly. See that his head is turned to one side, and the tongue is forward.

Perform artificial respiration.

Sometimes this process must be continued for an hour and a half before being effective, so do not give up too soon.

Keep the patient wrapped in a blanket or clothing to keep him warm and avoid shock.

### ELECTRICAL SHOCK

Insulate yourself. To do this, wear rubber boots or stand on a rubber mat. If these articles are lacking, stand on a perfectly dry paper, a dry board, or a book. Wear dry gloves, and use perfectly dry sticks to lift the wire. Push

your coat or some piece of dry cloth under the wire, so that it can be lifted without touching it with your hands. Then release the victim.

Loosen the patient's clothing. Give him plenty of fresh air. Open his mouth and pull tongue forward. If he is not breathing perform artificial respiration. After he begins to breathe, be sure to keep him warmly covered to prevent chilling.

### Sprains

Elevate the injured part.

Apply cold compresses or ice.

If the strain or sprain is slight, bandage the injured part firmly.

If the sprain is severe, see a physician.

### Sunburn

Before going out in the strong sunlight, dust the face and arms with a powder made of one part of quinine to fifteen parts of talcum.

Sometimes smearing the face with cold cream is effective.

After exposure, cleanse the skin with cold cream before bathing it with water.

### Snakebite

Tie a tourniquet tightly about the limb above the wound.

Suck the blood or poison from the wound, and spit it out immediately. The person who does this should not be one with bleeding gums or a wound in the mouth, or the venom may find its way into this person's blood stream and do serious harm. Snake venom in a healthy mouth does no harm.

Wash out the wound with soap and water, if possible.

Rub permanganate of potash crystals into the wound, taking care not to injure the tissues.

Keep the patient warm, and give half a teaspoonful of aromatic spirits of ammonia every half hour.

Have a physician or first-aider inject antivenin if it is available. This is the very best remedy for snake poison.

### Bites and Stings of Insects

If stung or bitten by a spider, centipede, scorpion, bee, hornet, or other insect, first remove the sting from the wound, if the sting has been left there.

Apply ammonia, vinegar, camphor, lemon juice, oil of citronella, or a strong solution of soda.

### Burns

If a person's clothing is on fire, extinguish the flames by rolling him in a blanket or rug. Laying the victim on the floor tends to prevent the flames from reaching the head and thus being inhaled.

If the burn is either extensive or deep, send for a doctor immediately.

For superficial burns, apply picric acid, tannic acid, or baking soda as

Photo by L. J. Larson

A loose bandage over sterile gauze protects a burn from infection.

directed below. Any soothing or protective grease, such as vaseline or cold cream, can be substituted.

For deep burns, put the patient to bed, removing clothing carefully from burned areas. If it sticks to the skin, cut out the adherent portion, and remove the rest so that the patient can be undressed. Do not tear the skin or superficial tissues. Adherent clothing can be soaked loose with baking soda solution or olive oil or salad oil. Keep the patient warm.

After the accident the greatest danger is infection. Cover the burns with sterile gauze, either wet or greased, to keep out dirt and to keep the dressing from sticking to the flesh.

### BLEEDING OR HÆMORRHAGE

Plug the wound with strips of sterilized gauze and apply a pad of the gauze over the wound, with a firm bandage to hold the pad in place. If sterilized gauze is not at hand, use the cleanest linen available.

If bleeding cannot be controlled in this way, try to stop the flow of blood by pressing hard with your hand over the blood vessel between the wound and the heart. If you cannot stop the bleeding by this kind of pressure, apply a tourniquet.

In any case of severe hæmorrhage, call a doctor if possible. He may need to use some injections that will make the blood clot more rapidly; or he may need to tie a suture around the blood vessel to stop the bleeding.

### STAB WOUNDS, CUTS AND TEARS

Wash your own hands with soap and water, clean your fingernails, and wash your hands again.

Paint around the victim's wound with a seven-per-cent solution of iodine.

Wash out the wound with water that has been boiled. In the absence of sterilized water and gauze, use the cleanest water possible and a clean handkerchief.

Wipe out all dirt and blood clots with wet swabs of sterilized cotton or gauze.

Bring the edges of the wound together with a long narrow strip of adhesive plaster, applied crosswise, leaving a

Photo by L. J. Larson

PRONE-PRESSURE METHOD OF ARTIFICIAL RESPIRATION.

a. Place hands over sides of patient over floating ribs. b. Press evenly on both sides without bending arms. c. Release pressure suddenly, but smoothly. d. Rest. e. Repeat above procedure to count, (1) "one thousand and one," (2) "one thousand and two," (3) "one thousand and three," etc., etc.

space on each side of the plaster for drainage.

Cover with several layers of gauze and apply a bandage.

### Appendicitis

SEND FOR A DOCTOR AT ONCE.

Gently give an enema of a quart of warm, soapy water. Apply large ice packs or an ice bag to the abdomen. If ice is not at hand, apply cold water compresses. Give no cathartics, and nothing else by mouth except small amounts of plain water.

### Violent and Persistent Vomiting

Put the patient to bed with a hot-water bottle to the feet and cold compresses to the abdomen.

Restrict the diet to small quantities of clear broth, thin gruel, ice-cold milk, or soft-boiled egg.

If these are not retained, try toast water, made by pouring boiling water over well-browned toast and straining off the fluid.

If these fail omit food entirely.

If the vomiting continues after twenty-four hours of rest without food, it is advisable to send for a doctor.

### HICCUP

Have the patient sip a little cold water, or swallow a bit of ice, or hold the breath for a few minutes.

If these measures fail, he should lie down on his back, draw up the knees enough to relax the abdominal walls, and have somebody press the fingers into his muscles just below the ribs, pressing inward and upward.

If the symptoms persist, give an emetic of one teaspoonful of mustard flour or two teaspoonfuls of salt to one pint of tepid water.

For a child, fomentations over the stomach will usually stop the attack.

For an infant, change the position, and use gentle pressure or massage over the stomach.

### COLIC

Give a hot soapsuds enema.

Apply fomentations or a hot-water bottle to the abdomen.

For an adult or a child (not a baby), give an emetic of one teaspoonful of mustard flour to one pint of water. Have the patient take the whole amount.

### NOSEBLEED

Have the patient sit upright. Apply cold compresses or ice to the nose and face for a few minutes.

If bleeding continues, pulverize a piece of alum or tannic acid and let him sniff a very small amount of it up the nose.

Gently packing the nose with cotton wool may be effective.

If all these measures fail, medical help must be summoned.

### CONVULSIONS IN CHILDREN

Immerse the child up to the neck in a tub of warm water, 100° to 102° F.

Apply ice bags or cold compresses to the head.

In case of long-continued or repeated convulsions that do not respond to home treatment, call a doctor.

### WHEN BABY SWALLOWS A BUTTON

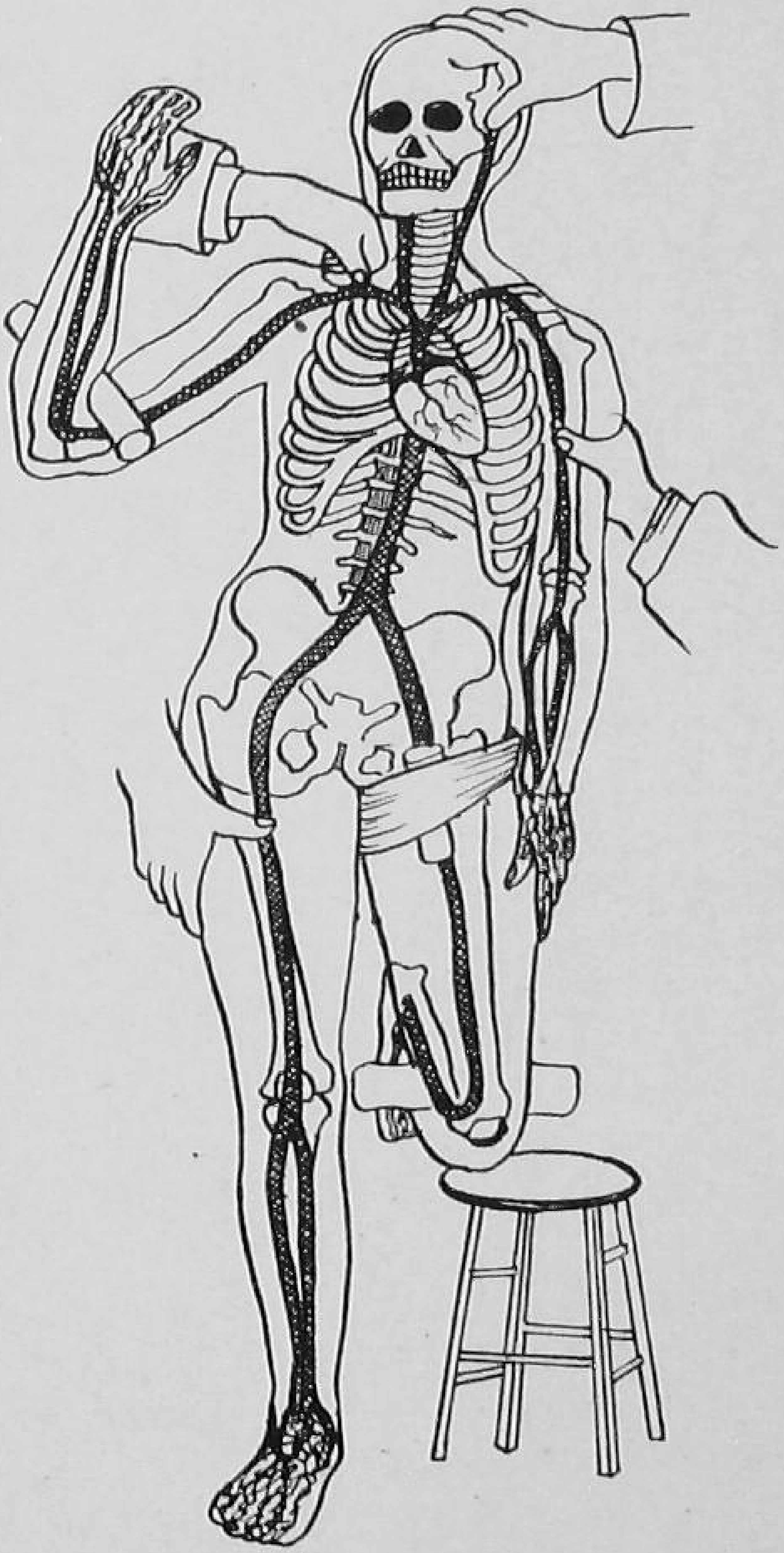
Give unusually large amounts of bread, cereals, and vegetables to assist the elimination of the substance.

Do not give emetics or cathartics.

Do not get excited; such accidents are seldom followed by ill results.

### FOOD POISONING

Have the patient drink a quart of



A chart showing pressure points to control arterial bleeding.

Photo by L. J. Larson

A fainting person should be placed flat on her back with the feet slightly higher than the head.

tepid water to which two teaspoonfuls of mustard flour have been added. If mustard is not at hand, use the same amount of baking soda. Salt water may also be used. The aim is to produce vomiting and wash out the stomach.

After emptying the stomach, give a tablespoonful of castor oil. Give a warm soapsuds enema.

Keep patient quiet in bed.

Omit food for twenty-four hours after the symptoms have been relieved.

If the symptoms are severe, send for a doctor.

### Foreign Bodies in the Skin

Wash your hands thoroughly and cleanse the skin of the sufferer.

Apply a seven-per-cent solution of iodine to the wound and its vicinity.

Pass a needle through the flame of a match or other fire and then insert it under the end of the splinter. Grasp the splinter between finger and needle and pull it out. For a large splinter, use a sterilized knife blade.

If a fish-hook enters the flesh, push it forward and out, so that the barb can be filed or cut off, when the shank is easily removed.

### Croup

Place the child in a tub of warm water.

Apply cold compresses to the throat.

Give an emetic. One teaspoonful of

Photo by L. J. Larson

Most of childhood's digestive upsets result from a wrong diet.

mustard flour to one pint of water—as much as the child will take.

If attacks recur, have the child examined by a doctor, for diseased tonsils and adenoids.

## FITS

Loosen the collar and clothing.

Protect the victim so that he cannot possibly injure himself in any way.

If the attack is known to be epileptic, pry open the mouth and insert a rolled-up handkerchief, stick, or other object between the teeth to prevent tongue-biting.

Do not give restoratives.

If the attack is hysterical, leave the patient alone.

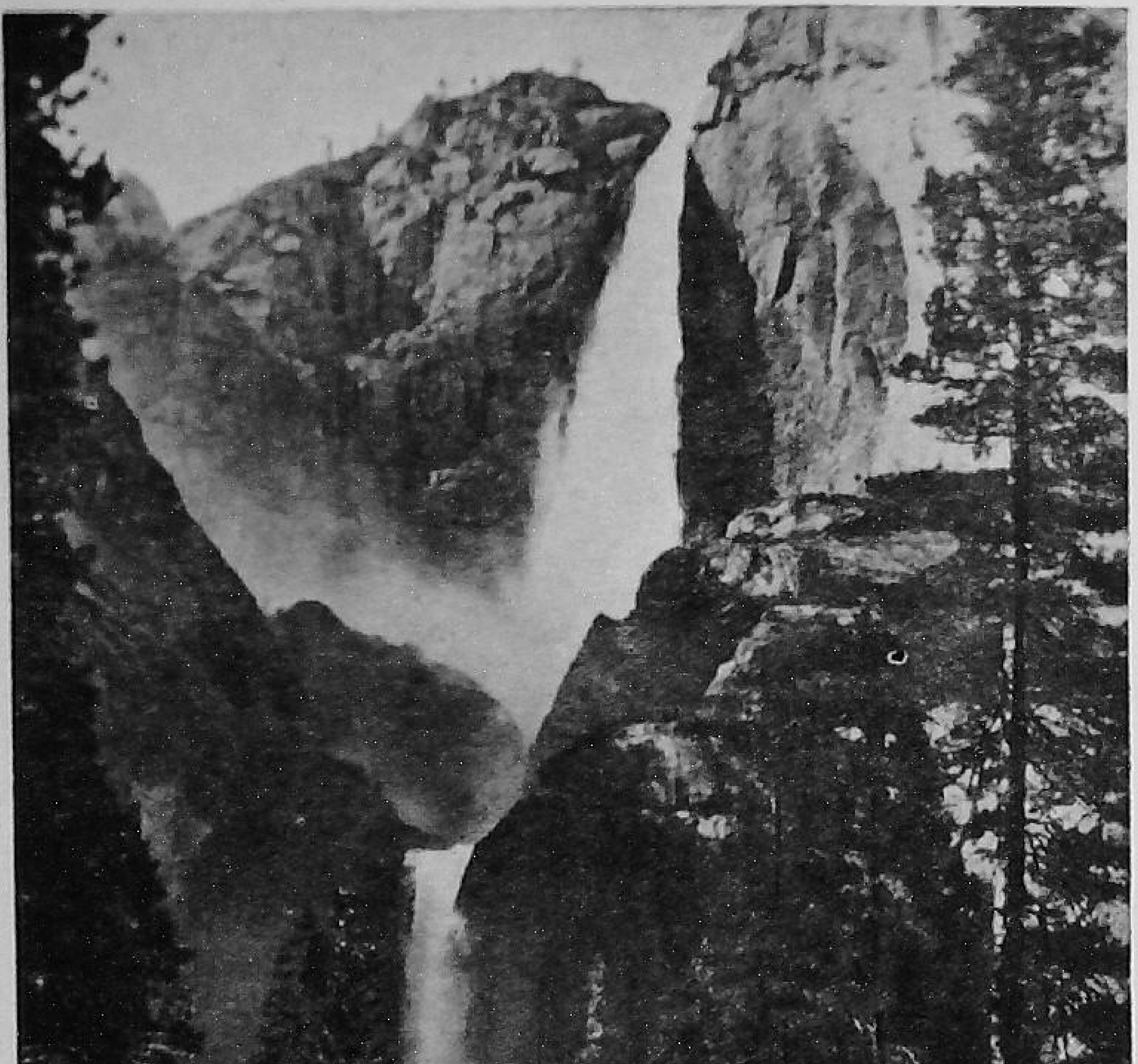


Photo by U. S. I. S.

"I will lift up mine eyes unto the hills."

## PART IV

# A NEW WORLD ORDER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After Dore.

Mighty empires of the past lie in ruins.

# Some Pertinent Facts

MANY centuries ago there were several successive empires in the Middle East that had an important influence on the neighbouring countries of the day, and were indeed no small factor in influencing the future of the world in the wider developments of later times. The lands that have of recent years received so much attention from statesmen, and whose fate seems to exert considerable influence on the balance of power among the Western nations, were one time themselves the seat of vigorous dominating forces, determining the status of neighbouring countries, rather than themselves being the subjects of exterior dictation. Mesopotamia, Persia, and Syria, situated as they are midway between the East and West, possess a certain amount of importance nowadays from their geographical position, if from nothing else. So many of the twentieth century world's interests swing on the relations between the Orient and the Occident that no land which may become a centre either of strength or of danger to those relations may be ignored. But in the days in which this story has its beginnings, these mid-Eastern countries were far from being mere passive pawns in the world's great game. They were themselves the centre of civilizations and vital forces of national life that influenced both the East and the West.

The civilization of the ancient people of Mesopotamia is said to have an antiquity rivalling that of ancient Egypt.[1] It is not to those very early times, however, that the reader is here invited to direct his thoughts. There was a later period, some 2,500 years ago, at which there existed in the Euphrates valley a kingdom whose career and accomplishments come within the range of well-authenticated history. Babylonia made an impression on the people of those times that has given it a very prominent place in the annals of the ancient historians, and these records

have been more or less confirmed by the research of modern excavators,[2] who have during the last half century unearthed many of the cities and buildings which made the ancient kingdom famous.

The glory of that particular phase of the Babylonian kingdom with which we are here interested appears to have been very great, and yet its whole history comes well within the limits of one century. There was one great king, Nabu-Kudur-Usur,[3] whose long reign of forty-two years marks the period of the kingdom's greatest prosperity, when it grew in fact into a mighty empire. This king is known in modern literature as Nebuchadnezzar. His military genius resulted in the conquest of Syria, and Phœnicia, and even of Egypt and Arabia.[4] His constructive energy consolidated during his lifetime the greater part of these territories into one empire. But Nebuchadnezzar was not merely a great soldier. He is even more celebrated for his accomplishments in the peaceful arts. His renown as a builder was so great that even the highly cultured Greeks described the famous "Hanging Gardens" with which he adorned his capital, as among the seven wonders of the world.[5] And Nebuchadnezzar himself gloried more in his great work as a builder than he did in all his conquests. So great was his influence that it is said that not a single mound that the explorers have opened in all Babylonia has failed to yield bricks, clay cylinders, or tablets inscribed with his name. In all these inscriptions he boasts of the temples and palaces he erected and of the glory of his capital city; but only in very rare instances does he even mention his military exploits.[6]

The capital city, Babylon, was situated on the Euphrates, about seventy miles south of the modern Bagdad. This Babylon had been the capital of various dynasties during the preceding ages, and was regarded as the holy city of Western Asia. During the reign of Nebuchadnezzar a new energy was given to architectural activity that made the city one of the greatest of all ancient times. It was laid out on a fifteen-mile square, on both sides of the river, surrounded by immense walls studded with a hundred or more brazen gates. The thickness of the walls at the top was sufficient, according to Herodotus,[7] to allow for the turning of a chariot with four horses. For the extreme regularity of its straight broad streets, crossing one another at right angles, it has probably not been surpassed even by the most favoured cities of modern times. Babylon contained two royal palaces, one on either side of the river, connected by a subterranean passage that ran beneath the river bed. The famous temple of Belus, a quarter of a mile square, contained an immense

Photo by L. J. Larson
The beautiful gardens that adorn our great cities cannot be compared with Babylon's "Hanging Gardens."

pyramidal structure with the chief shrine at the top.[8] In the royal pleasure grounds the "Hanging Gardens," supported by tier upon tier of open arches, contained at a height of seventy-five feet a great body of earth in which flourished trees of the largest size as well as many rare flowers and ornamental shrubs.[9]

In this city there were great libraries. It was the centre of learning of the Semitic race. From its observatories men

of no mean astronomical ability studied the movements of the heavenly bodies and left on record their accurate calculations of eclipses and observations of other phenomena that indicate quite a high development of scientific knowledge.[10]

The merchants and traders of Babylon carried their commerce over all the countries between the Persian Gulf and the Mediterranean. They were the representatives of a civilization that imparted a new impulse to the life of the peoples that came under the imperial sway.

With so accomplished and vigorous a leader as Nebuchadnezzar seated on the throne, Babylon became the queen city of her age, and the Babylonian kingdom the greatest force in the affairs of the world at that time.

The military activities of Nebuchadnezzar seem to have been directed westward toward the Mediterranean, rather than eastward toward India. It was while he was yet a young man, leading an army against Syria, that the news of his father's death reached him, causing him to return post-haste to Babylon to claim the royal dignity, leaving his generals to continue the already successful campaign westward.[11] In later years the inhabitants of Syria and Phœnicia became entirely subject to his sway, whilst he gained notable victories over the Egyptians.

While the Babylonian kingdom was in its early ascendancy, a short-sighted Jewish ruler on one occasion showed its envoys some of the fabulous treasures[12] that had been amassed some centuries before by David and Solomon, the celebrated founders of the Hebrew monarchy. The result was, as might have been anticipated, that in later years, when the Babylonians were strong enough to undertake the conquest of Syria and Palestine, the Jews were made to give up the sacred vessels and the wealth that had adorned their temple, and were compelled to witness their use in the temples and worship of Babylon.

Some years later, owing to the restless state of the Jews and the disordered conditions prevailing in Palestine as a result of their unwillingness to submit to his rule, Nebuchadnezzar destroyed their city and temple and exiled the greater part of the people to Mesopotamia.

Among the captives who were thus taken from Palestine to Babylon was a young Jew who appears very prominently in later Babylonian history as Daniel Belteshazzar. This young man was a member of the Jewish royal house, and had before his captivity received the advantages of the best education his country and people could give. It was a part of the policy of Nebuchadnezzar to select from among the conquered

peoples persons of ability, and give them special facilities for learning his own tongue, the Chaldean, in order that they might become of use to him in the administration of the subject provinces.[13] Young Belteshazzar was among those who were selected by the king for this kind of service, and it was arranged that he with others should be given a three years' course of training in the Babylonian capital. This course was to include an introduction to the arts and sciences as they were understood in a city that had already become famous as a centre of learning. The broad-minded and generous nature of Nebuchadnezzar is illustrated by the fact that he brought the most promising of these young captives into his own palace, and gave personal directions as to their entertainment during their three years' study; his intention being to secure to them every possible advantage, even to the extent of providing their food from the royal table.

This arrangement resulted in some perplexity to Daniel Belteshazzar and others of his countrymen who shared his exile. They desired to avoid giving unnecessary offence to the king, and yet they had conscientious scruples that prevented their accepting the fare he had provided for them. In the first place intoxicating wine flowed freely from the king's table, and this the young Jews would not partake of, especially as it was likely to have first of all been poured out as a libation to the gods of the Babylonians. And then the flesh of animals which the Jews regarded as unclean was so often mingled with other foods that the young Hebrews were unable to eat of most of the dishes. Having already resolved that whatever might happen they would remain true to the religion of their fathers, captives though they were, they were led to ask that they might be altogether excused from partaking of the rich viands of the king's table.

When they approached with this request to the officer who had been set over them, he was afraid to give his consent to any modification of the king's arrangement. He thought that the substitution of the simple diet suggested by Daniel for the richer foods of the royal table would soon show unfavourable results in the physical appearance of the young men. Should this come to the notice of the king, and lead to an inquiry, he knew that the result of his interference might well be the loss of his own head.

Daniel and his companions then went to the steward whose work it was to serve them with their daily portion of food, and asked him to put them on trial for a time, allowing them to use an entirely non-flesh dietary, and giving them simply water to drink. They agreed that if after a certain time they

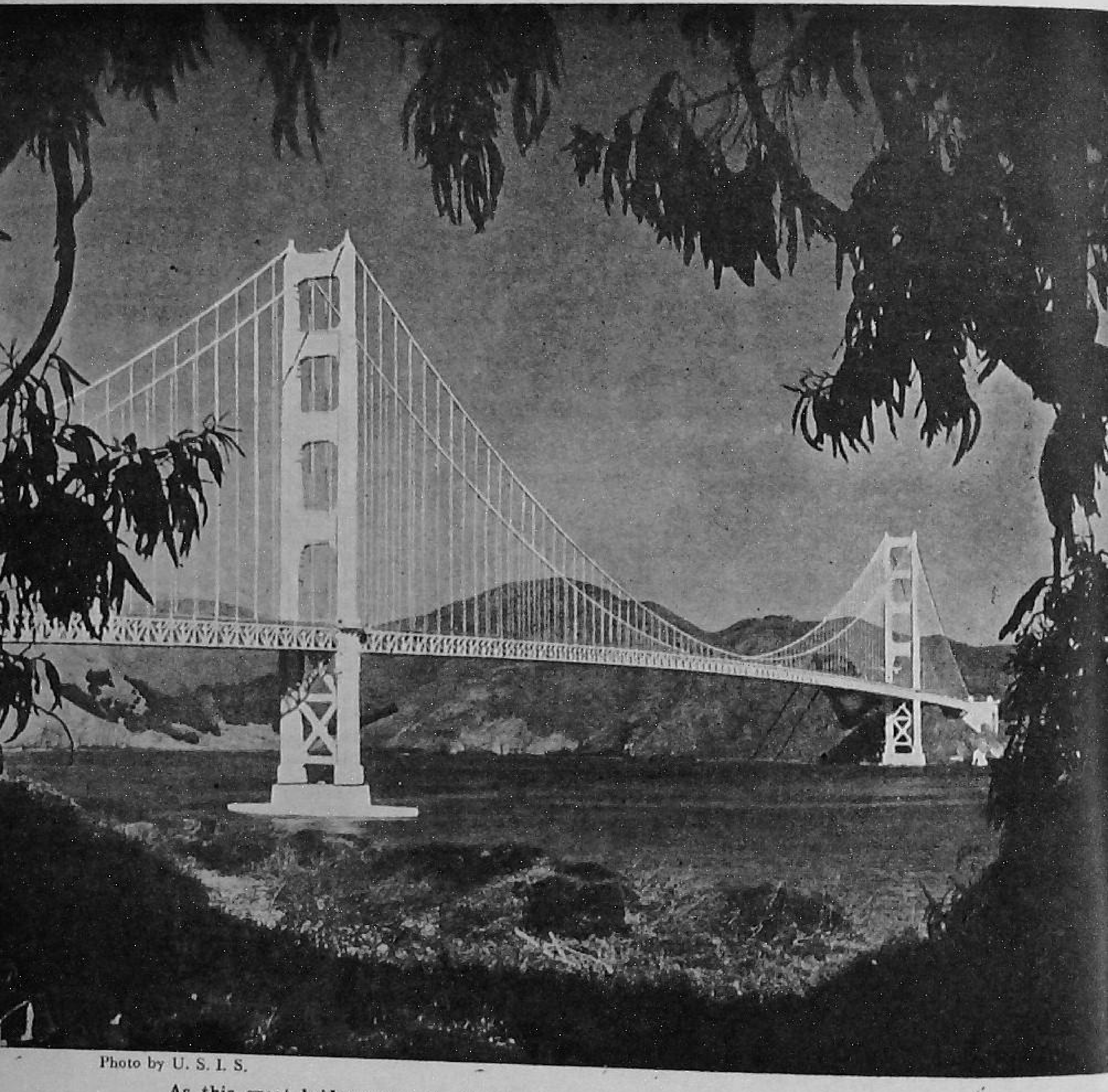

Photo by U. S. I. S.

As this great bridge spans the Golden Gate so prophecy spans the stream of time.

compared unfavourably with the young men who ate the usual palace diet, they would release the steward from their request to be allowed to eat the simpler food; but they requested him that in the event of it proving that they had not suffered physically as a result of their adopting the diet they had chosen, they should be allowed to continue its use.

The result of the experiment was that at the end of the time agreed on, the young Hebrews, so far from having suffered physically were found to be in a much better condition than those who were partaking of the king's food. The steward therefore agreed to supply them throughout the three years of their appointed course of study with the food they had requested.

So keen was the interest of Nebuchadnezzar in his plan for the education and training of the young captives, and the enlistment of their efforts in the carrying out of his schemes for the advancement of the subject provinces, that he took part personally in the work of their examination at the close of their course of study. The result of the examination was to show that Daniel Belteshazzar and his companions, because of their clean and temperate living, had far outstripped their fellow-students. In the opinion of the king they compared very favourably in judgment and understanding with many of his counsellors of older years, and he arranged that they should be appointed to such work as would enable him to make most use of their capabilities.

Daniel Belteshazzar, while he was in the course of time advanced to very high positions of trust during the reign of Nebuchadnezzar and the succeeding monarchs,[15] was always characterized by a deeply religious spirit. This aspect of his life soon brought him in to Nebuchadnezzar in a remarkable way and led to an incident that will be related in the next chapter.

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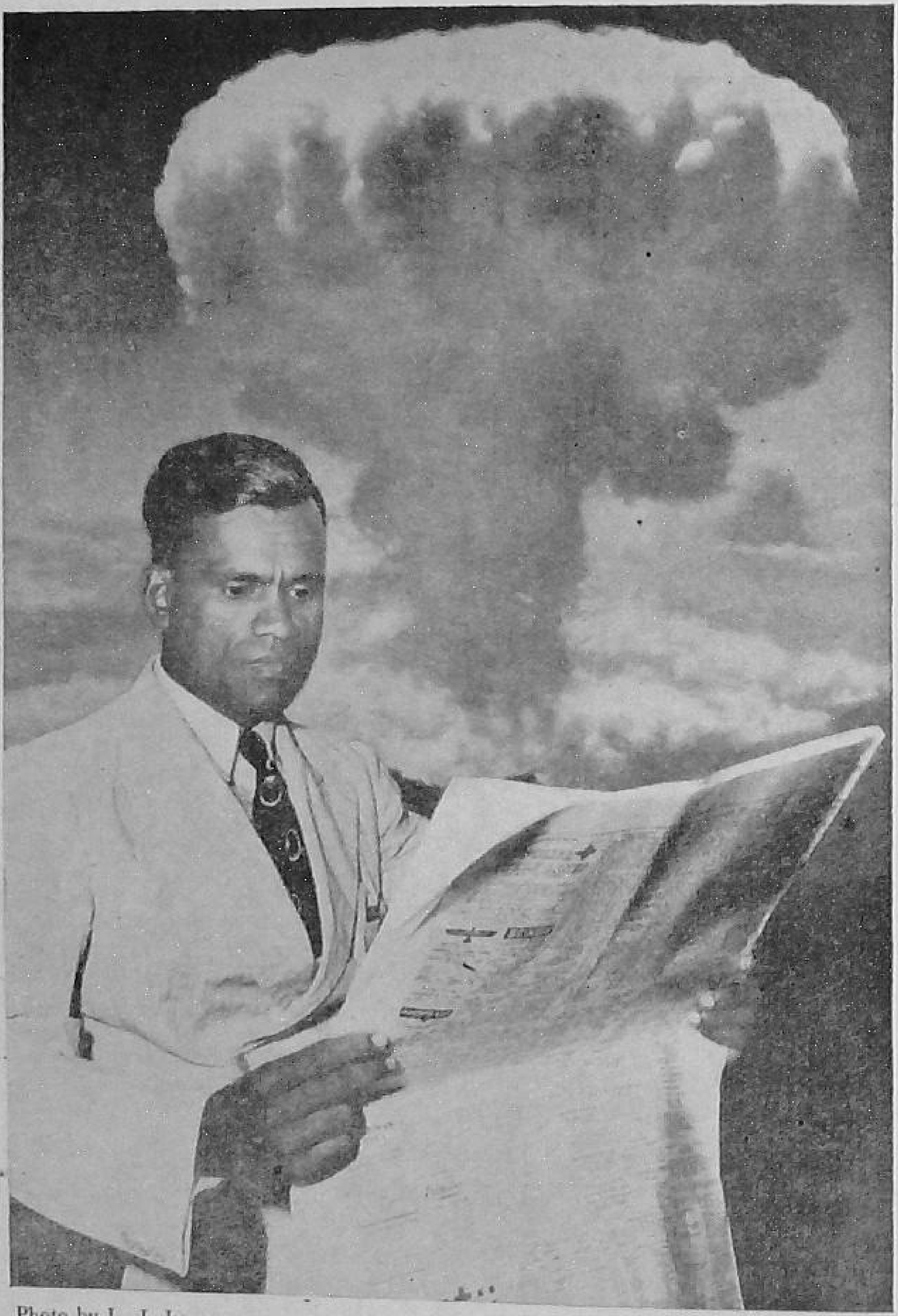


Photo by L. J. Larson

"Men's hearts failing them for fear, and for looking after those things which are coming on the earth."

# *Anxiety about the Future*

NOTWITHSTANDING the phenomenal success that had attended his efforts to extend the influence of his kingdom and to solidify the organization by which the conquered provinces were held and administered, Nebuchadnezzar was anxious about the future.[1] He could not but reflect that other kingdoms had preceded him in ruling over a great deal of the territory he now occupied, and that despite their apparent strength they had one after another fallen into decay and had been overthrown. Certainly he had erected an empire that greatly exceeded in strength any of the former ones, and he did not fear that any change was likely to come within his own lifetime; but as he endeavoured to peer farther into the future the outlook seemed to be involved in great uncertainty. How was he to know that the voluptuousness of the imperial court would not lead to weakness and effeminacy in his descendants and successors, causing the empire to slip from their grasp just as had so often occurred in the history of the past? Was he not aware that even his capital city, Babylon, on which he had bestowed such vast labours, was but the successor of former cities that had flourished on the same site? Thousands of years before Babylon had been the metropolis of Mesopotamia, but falling away afterward to a comparatively insignificant provincial town, had continued in that state, century upon century.[2] Then again in later ages other dynasties had selected it as the seat of government, until only a couple of generations before Nebuchadnezzar's time it had been once more razed to the ground. His father, had reclaimed the city, and he had now made it not only a wonder to the world for architectural design and æsthetic refinement, but also an impregnable fortress such as had never existed before, as far as he knew. Surrounded on all sides with fortified walls 300 feet in

height, and stored with provisions to meet a twenty years' siege, there seemed to be no forces that could be brought against it that would be likely to effect its capture. But Nebuchadnezzar was soldier enough to remember that fortified walls were not in themselves a guarantee for the continuance of a kingdom. At present the hardiness and efficiency of his followers, and his own bold and experienced leadership were sufficient to rely upon; but how could he prevent the intoxication of success, and the luxury arising out of national and individual wealth having the same effect upon his empire that it had had upon the preceding kingdoms?

Nebuchadnezzar saw that there were wonderful possibilities for the further extension of the Babylonian dominion, should his initial successes be followed up as they might be. His ambition could not be satisfied with less than the conquest of the world, as he knew it. But then again there came the disquieting thought that even though he and his sons might gain control of the whole world, there was still the danger that in the course of time the empire might dissolve again, or pass to the control of others. Was there not some way in which he could establish a kingdom that would be not only universal, but perpetual?

Far into the night the king remained absorbed in this train of thought until he at length fell into a deep sleep. He had not slept long, however, when there came a dream that troubled him and finally startled and awakened him. As he lay there trying to recall the dream that had disturbed him, he was vaguely conscious that it had some important connection with the subject that had so deeply engrossed his thoughts in the earlier part of the night—the future of the world, and the permanence or otherwise of his kingdom.

Impressed with this conviction the king was much perturbed by the fact that he could not at all recall the dream, though it had evidently been sufficiently vivid and startling to awaken him from a deep sleep. Finding that his restlessness increased, so that further attempts to sleep proved fruitless, he arose and called for his attendants.

Babylon was celebrated as the centre of the mystic worship of the Assyrian deities, Mardub and Nabu.[3] Their worship had survived the rise and fall of many kingdoms, and was in the minds of all classes enshrouded in great mystery. The priests were supposed to be initiated into secret methods of communication with the gods, or with the spirits of the departed. There was also at the court a large class of professed occultists, astrologers, and magicians, who thrived because of their supposed power to reveal hidden and secret things.

Nebuchadnezzar's mind turned to these men with the hope that they might be able to assist him to recall the forgotten dream, and thus perhaps throw light on the subject on which he most coveted knowledge—the future.

Without consideration as to the unseasonableness of the hour, he sent urgent messages calling for the prompt attendance at the court of the so-called seers and wise men of the kingdom, and confronted them with the difficult problem of revealing the forgotten dream. The men summoned assured the king that if he would relate the dream to them they would guarantee to explain its meaning. This, however, Nebuchadnezzar could not do, and he was moreover not so obsessed with the superstition of his times as to be unable to see that these men, if they really possessed the power they claimed, would be able to obtain a revelation of the dream itself just as readily as a revelation of its interpretation. Losing patience with their evident intention to impose on him with a fraudulent interpretation in the event of his being able to recall the dream, Nebuchadnezzar ordered them from his presence. Worn out with sleeplessness and anxiety and exasperated with the duplicity of a class whom he now regarded as charlatans, the king issued an order for their wholesale execution and the destruction of their property. In those days such a decree coming from an autocratic ruler such as Nebuchadnezzar was, would be likely to be carried into effect without much delay, despite the influential position of those who had been condemned.

The carrying out of the execution was committed to the king's guard. The officer in charge for some unknown reason included Daniel Belteshazzar and a number of other Jews among the number to be executed, although they had not been among those whom the king had called in for consultation.

Surprised and perplexed at the astonishing news that a decree had been given that they should suffer the death-sentence, Daniel inquired why such a hasty and apparently uncalled-for decision had been made. The captain of the guard then related the happenings of the previous night. This led Daniel to decide to seek a personal interview with the king, which he shortly succeeded in obtaining. Gloomy and irritable as he was, Nebuchadnezzar was in no mood to reverse the order he had given; but as Daniel pleaded to be allowed time, and even promised should time be given him that he would make known the forgotten dream, the king recalled the favourable estimate he had formed of the young man at the time of the recent examinations, and gave his consent.

In venturing to promise that if time

were given him he would tell the king the forgotten dream, Daniel had relied wholly on the help he believed he would receive from God, in answer to prayer. Returning quickly to his quarters he united with three chosen companions in presenting earnest petitions to the God of heaven. They and their forefathers had long known God as one who was willing to hear and answer the prayers of His earthly children; so these young men made their appeal to Him with full confidence that He would send them deliverance from the impending death-sentence, which they had in no way merited. They felt assurance also that their God whom they knew to be the living God, the Creator of the heavens and the earth, would in this crisis reveal Himself in such a way as to show His power and greatness and goodness to the king and to all men, in contrast with the helplessness and nothingness of the Babylonian deities.

These earnest prayers were heard and answered. During the night a vision appeared to Daniel in which was made known to him the very dream the king had forgotten.

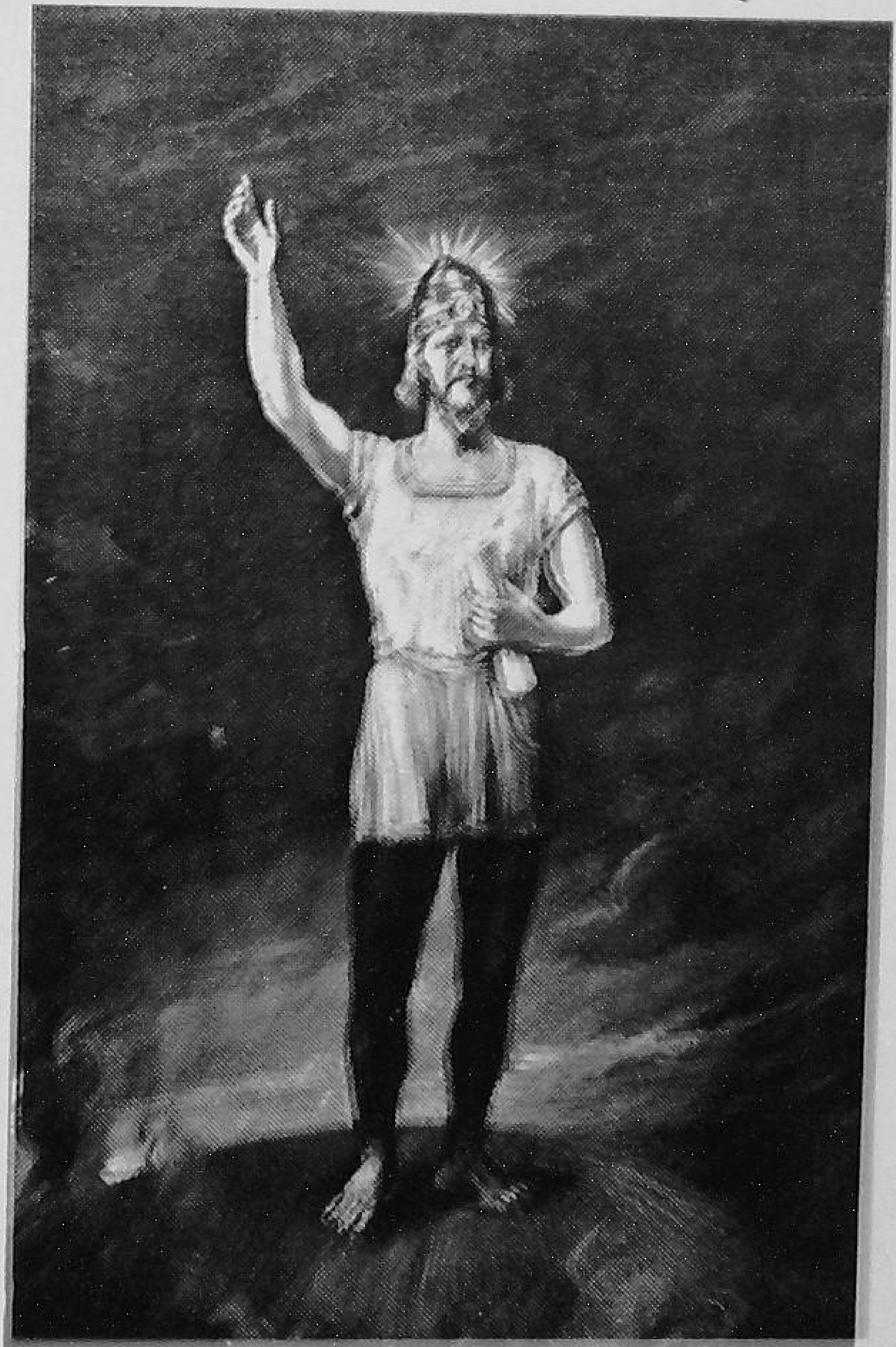
Rising from his couch, Daniel first of all praised and thanked the God of heaven. Then going to the apartments of Arioch, the captain of the king's guard, he asked that on no account should any of those who were under the sentence of death be executed, for he was now in a position to make known the dream to the king. The captain of the guard hastily brought Daniel in before Nebuchadnezzar. The king looked doubtfully at Daniel, and asked if he were really able to make known this matter. If so many older men, skilled in the occult arts had failed, how could a young man such as Daniel, who had not accepted initiation into the Babylonian mysteries, succeed?

Daniel assured the king that he recognized that it was impossible for the Babylonian mystics and occultists to make the revelation he had called for. He said further that as for himself he had no more wisdom than other men living, and could not of himself have made known the matter. "But," he continued, "there is a God in heaven that revealeth secrets, and He hath made known to the king Nebuchadnezzar what shall be in the latter days."

The king now listened attentively, waiting for Daniel to tell what had been revealed to him. A rumour of the nature of Daniel's mission had spread throughout the palace, and all who could on one pretext or another come within the court, pressed in to hear what the young Jewish exile would say.

### The Dream

In clear and confident tones Daniel now addressed the king as follows: "As



The image of Nebuchadnezzar's dream.

for thee, O king, thy thoughts came into thy mind upon thy bed, what should come to pass hereafter: and He that revealeth secrets maketh known to thee what shall come to pass. Thou, O king, sawest, and behold a great image. This great image, whose brightness was excellent, stood before thee; and the form thereof was terrible. This image's head was of fine gold, his breast and his arms of silver, his belly and his thighs of brass. His legs of iron, his feet part of iron and part of clay. Thou sawest till that a stone was cut out without hands, which smote the image upon his feet that were of iron and clay, and brake them to pieces. Then was the iron, the clay, the brass, the silver, and the gold, broken to pieces together, and became like the chaff of the summer threshing-floors; and the wind carried them away, that no place was found for them; and the stone that smote the image became a great mountain, and filled the whole earth. This is the dream; and we will tell the interpretation thereof before the king."[4]

Great was the astonishment of King Nebuchadnezzar as there flashed back into his memory the forgotten dream. He saw it all again now, the great shining image composed of four different metals, smitten by an unhewn stone, reduced to powder and blown away. His memory bore witness to the truth of Daniel's statement.

The tension among the assembled courtiers was great as they listened to Daniel's relation of the dream, and watched in anxious suspense to see whether Nebuchadnezzar would recognize it or whether after all the young Jew's professed ability to reveal the secret would prove of no greater value than the pretensions of those who had already been condemned as impostors. A murmur of half-suppressed exclamations of wonder and astonishment was heard, as all saw by the expression on the king's face that what Daniel had related was really the forgotten dream.

Without pausing to give opportunity for the king to express recognition of the dream, and with the same calm confidence that had characterized his manner from the beginning, Daniel proceeded to explain its meaning. He told Nebuchadnezzar that the four metals in the great image of the vision, the gold, silver, brass, and iron, represented four great kingdoms that were to arise successively and bear rule over the earth. Reminding the king of the extent of his own dominion, Daniel declared that the Babylonian kingdom was represented by the head of gold. Then, he said, just as the head of gold in the image was succeeded by the breast and arms of silver, the thighs of brass, and the legs of iron, so after the golden kingdom of Babylon had come to an end, there would arise another

The stone "cut out of the mountain without hands" smote the image upon the feet.

kingdom likened to silver, then a third likened to brass, and then again a fourth kingdom, which would be as strong as iron; but even this fourth kingdom, strong as it would be, the young prophet declared, would not continue indefinitely. Thus he continued:

"Whereas thou sawest the feet and toes, part of potters' clay, and part of iron; the kingdom shall be divided; but there shall be in it the strength of the iron, forasmuch as thou sawest the iron mixed with miry clay. And as the toes of the feet were part of iron, and part of clay, so the kingdom shall be partly strong, and partly broken. And whereas thou sawest iron mixed with miry clay, they shall mingle themselves with the seed of men; but they shall not cleave one to another, even as iron is not mixed with clay."[5]

Then Daniel called the attention of the king to the latter part of the vision, in which a great stone had smitten the image in the feet, grinding it to powder, so that the image disappeared; but the stone remained and increased in size until it finally filled the whole earth. This, Daniel said, represented a great universal kingdom that would succeed all the others; a kingdom that would occupy the whole world, and that would endure forever. It would be set up in the days of the kingdoms represented by the divided state of iron and clay in the feet and toes of the image.

Daniel concluded by saying, "In the days of these kings shall the God of heaven set up a kingdom, which shall never be destroyed; and the kingdom shall not be left to other people, but it shall break in pieces and consume all

these kingdoms, and it shall stand forever. Forasmuch as thou sawest that the stone was cut out of the mountain without hands, and that it brake in pieces the iron, the brass, the clay, the silver, and the gold: the great God hath made known to the king what shall come to pass hereafter: and the dream is certain and the interpretation thereof sure."[6]

Nebuchadnezzar was deeply moved as Daniel spoke of the rise and fall of the kingdoms of the future. Was not this the very information he had desired to have on the eventful night the vision had appeared to him? Seeing that Daniel had been able to recover the lost dream, he could not doubt that he was fully qualified also to give the interpretation. The king was convinced that the dream had come as a vision from God, and that Daniel had received the knowledge of its interpretation through divine revelation; so he answered Daniel and said: "Of a truth it is, that your God is a God of gods, and a Lord of kings, and a revealer of secrets, seeing that thou couldst reveal this secret. Then the king made Daniel a great man, and gave him many great gifts, and made him ruler over the whole province of Babylon, and chief of the governors over all the wise men of Babylon."[7]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[1] Daniel 2:29.
[2] *Encyclopædia Britannica*, art. "Babylon."
[3] Jastrow's *Religion of Babylonia and Assyria*, pp. 649, 650.
[4] Daniel 2:29-36.
[5] Daniel 2:41-43.
[6] Daniel 2:44, 45.
[7] Id. verses 47, 48.

# *History in Advance*

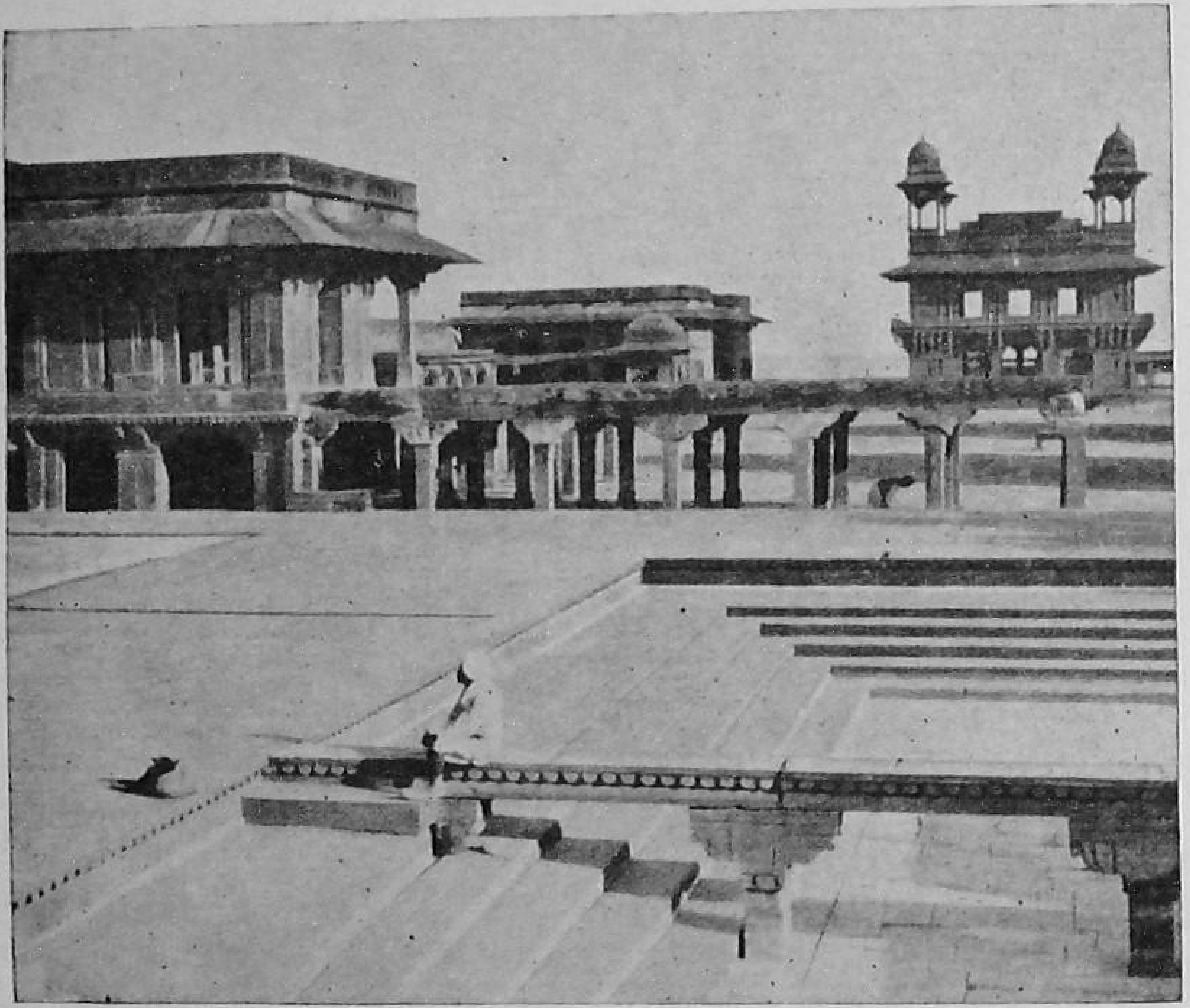
### Babylon—the Golden Kingdom

As Nebuchadnezzar pondered over the revelation of the future that had been made to him, he saw that it confirmed all his apprehensions as to the likelihood of his kingdom being superseded by another. The history of the past, according to Daniel's prophecy, was to be repeated in the future; so far as the instability of earthly kingdoms was concerned. It was true that Daniel had spoken of one final universal kingdom that would endure forever; but that was evidently to be in the far distant future. The king was proud of the fact that his kingdom was represented in the vision by the head of gold, while the other succeeding kingdoms were represented by less valuable and less beautiful metals. Nevertheless it was to him an unpalatable truth that his kingdom must eventually give way to others.

During the remainder of his long reign, Nebuchadnezzar endeavoured to strengthen his empire and to establish it on such a basis that its overthrow might be put off into the future as far as possible; but finally he died, leaving the throne to his son, Evil Merodach, and his grandson, Belshazzar.

The fears of Nebuchadnezzar that his descendants and successors might become softened by luxury and ease, and thus become unfitted to defend the empire, soon proved to have been well founded.

A little more than twenty years after his death some of the provinces rebelled, and it was not long before his grandson, Belshazzar, instead of being able to maintain his own in the field against the rebels, was forced to retire within the walls of Babylon and there make his defence. Instead of maintaining a vigilant resistance to the enemy, king Belshazzar then foolishly gave him-



**Magnificent buildings and pools remind us of the glories of past empires.**

self up to feasting and drunkenness, thinking himself and his army quite safe from conquest within the mighty walls of Babylon. The king not only plunged into riotous pleasure himself, but made great feasts for his officers and soldiers and thus unfitted them also for the work of defending the city.

There was one night in particular, when a great Babylonian festival was due, that Belshazzar planned, notwithstanding the presence of the armies of his enemies outside the city walls, to give a great feast to a thousand of his lords. Great quantities of wine were ordered, and Belshazzar vied with the officers of his armies in the amount he consumed. When they had become inflamed with much drinking, the king called for the sacred vessels his grandfather had brought from the temple at Jerusalem, and from these they drank more wine, shouting the praises of the gods of Babylon.

In the midst of the revelry there suddenly appeared a mysterious hand writing a message on the wall of the banqueting house. The drunken king with his thousand guests was sobered at the sight. The letters of the writing on the wall seemed like letters of fire. The feast was stopped, the songs were silenced. The king was so filled with fear that his knees smote one against another, and he cried aloud for some one to be brought who could read to him the writing on the wall. But no man could read it. At last the queen heard of the king's trouble, and coming into the banquet house, spoke to him as follows:

"O king, live forever; let not thy thoughts trouble thee, nor let thy countenance be changed: there is a man in thy kingdom, in whom is the spirit of the holy gods; and in the days of thy father light and understanding and wisdom, like the wisdom of the gods, was found in him; whom the king Nebuchadnezzar thy father, the king, I say, thy father, made master of the magicians, astrologers, Chaldeans, and soothsayers; forasmuch as an excellent spirit, and knowledge, and understanding, interpreting of dreams, and shewing of hard sentences, and dissolving of doubts, were found in the same Daniel, whom the king named Belteshazzar: now let Daniel be called, and he will shew the interpretation."[1]

Daniel Belteshazzar was a young man when he interpreted the dream of Nebuchadnezzar. Since then many years had passed away, and he was now an old man of more than ninety years. He remembered that God had shown him that the Babylonian kingdom would pass away and another kingdom take its place, and now as he was called into the king's presence, and saw the writing on the wall, he knew that God had sent a message telling of the final doom of Babylon. Daniel reminded king Belshazzar of the message God had sent his grandfather, Nebuchadnezzar, and then reproved him for the misuse of the sacred vessels of the Jewish temple for wine drinking, and for praising the Babylonian gods. Then the prophet read the writing on the wall, which he said had been written there by a hand sent from God. "MENE, MENE, TEKEL, UPHARSIN." These words Daniel interpreted to mean, "God hath numbered thy kingdom and finished it. . . . Thou art weighed in the balances and found wanting. . . . Thy kingdom is divided and given to the Medes and Persians."[2]

Soon there was heard the sound of shouting and fighting in the courtyard of the palace. Unnoticed, the enemy had succeeded in gaining an entrance within the city walls, and the first alarm that reached the royal feaster and his guests was heard when the enemy fell upon

the royal guard at the very gate of the palace. Belshazzar and his lords hastily girded on their swords and rushed out for the defence of the city; but it was too late. The streets were filled with the troops of the enemy. That night the careless and dissolute king Belshazzar fell, vainly fighting for his life, and the Babylonian kingdom, with all its golden glory passed away forever, and another kingdom arose to take its place.

### MEDO-PERSIA—THE KINGDOM OF SILVER

The combined monarchy of the Medes and Persians succeeded Babylon in the rulership of the great mid-Eastern empire. Cyrus, the well-known Persian king and famous general, brought about the capture of the Babylonian capital, and established a still greater kingdom in place of the dominion built up by Nebuchadnezzar.

The Medes in those days occupied the territory corresponding to Azerbaijan, Irak Ajemi, and other modern provinces to the northwest of Persia. Having succeeded in uniting the Medes and the Persians under his leadership, Cyrus advanced from the vicinity of modern Bagdad to make an attack on Babylon. The Babylonians made but a feeble resistance in field warfare, and at length were compelled to make a final stand within the fortifications of the capital city. Here they felt they were safe from all attack. What enemy could break through the amazing defensive works with which Nebuchadnezzar had surrounded the city?

As the armies of Cyrus surrounded Babylon and made their preparations for the siege, the defenders looked down from its high walls and derided them.[3] They knew that they had stored within the city sufficient supplies to last them for many years. Their walls were impregnable against any instruments of warfare known in those days. What had they to fear from the efforts of the Persians?

Not at all discouraged by the difficult task before them, Cyrus determined that he would capture the city by stratagem if he were unable to succeed by direct attack. He ordered a large section of his army to dig a canal some distance away from Babylon so that at the desired time he could divert the course of the river that ran through the city, and thus perhaps gain an entrance through the river bed. When these preparations were completed, Cyrus divided his forces into three armies.[4] The first was stationed near the point where the Euphrates entered Babylon, the second on the side whence it flowed out, and the third was appointed to complete the work of diverting the course of the river, turning it into the canal that had already been constructed, and thus

The vast petroleum resources of the Middle East have again brought Persia into prominence.

Photo by U. S. I. S.

causing it to flow over the plains. The result was that soon the water in the river bed near the city became shallow and fordable. In order to ascertain if the bed of the channel was firm enough to afford a passage for a large army, Cyrus first sent in his own body guard to test the matter.[5] Having received a favourable reply he now exhorted his army to advance bravely to the attack.

The Babylonians had built walls along the river banks on both sides along its whole course through the city. If the defenders had been vigilant they might easily have frustrated any attempts made on them from the river bed. But Cyrus had heard of the great festival which the Babylonians were to hold, in which they would give themselves over to feasting and drinking throughout the whole night, and that was the night he had chosen for the

attack. So careless were the Babylonians in the revelry of their festival that they had left the river gates open, so as to allow free course for the holiday traffic from one side of the city to the other. When at a late hour the armies of Cyrus ascended from the river bed for the great attack, they gained an easy possession of the greater part of the city before the defenders were aware of what had happened. A detachment of Cyrus' troops were ordered to make an assault on the palace, and quickly overcame the royal body guard, driving them at the sword's point into the presence of the king (Belshazzar).[6] Finding the king with drawn scimitar in his hand, they quickly overpowered and slew him. The fighting then soon ceased, and the city submitted to the rule of the Persian king.

The empire of the Persians was far more extensive even than that of the Babylonians had been. Their borders reached as far eastward as the rivers Indus and Sutlej in the Punjab, and even to the desert of Tibet. On the west the Persians not only occupied Syria and Palestine, but the whole of Asia Minor. They also conquered Egypt and carried their borders in Africa as far as Ethiopia. In the height of its glory the Persian empire embraced a hundred and twenty-seven provinces,[7] and covered an extent of about 3,000 miles from east to west, with a great depth north and south of from 500 to 1,500 miles.[8]

Thus in harmony with the prophecy of Daniel, the empire of Babylon had fallen, and another had taken its place; the head of gold which represented the first kingdom, Babylon, had given way to the breast and arms of silver representing the second, Medo-Persia. Did the other kingdoms follow in the order he had predicted? Did the future of the world prove to be such as he declared God had revealed to him? We can obtain an answer to these questions only by tracing the course of history still farther down the stream of time; so we continue this absorbing study.

## GRECIA—THE KINGDOM OF BRASS

The supremacy of the Persian kings continued for about two centuries. Darius Hystaspes, third in succession from Cyrus, invaded Europe and carried his conquests as far as Scythia,[9] the southern portion of modern Ukraine. The same Darius made several attempts to invade Greece, but unsuccessfully. On the death of Darius, his successor, Xerxes, persevered with the plan to subjugate the Greeks. He raised an enormous army, said to include contingents from forty-nine nations subject to the Persian sway. Supported by this tremendous force, he crossed the Hellespont on a bridge of boats into Europe, traversed Macedonia;

entered Greece, and succeeded in capturing Athens.[10] But after a campaign covering about twelve months he was completely defeated at Salamis and Platea, and retreated again to Asia. This was the last time the Persians invaded European Greece.

The defeat of Xerxes' expedition into Greece proved to be the turning point in the history of the Persian empire. Although it was many years before the Greeks became strong enough to invade Persia, doubtless their success in defeating Xerxes inspired them with that ambition.

It was almost a hundred and fifty years after Xerxes' famous failure that the well-known Greek king, Alexander the Great, undertook an expedition against Persia. Alexander was only twenty years of age when he succeeded his father as king of Macedon, the dominant state of the Grecian alliance. He immediately determined to carry into effect the design the Greeks had cherished for some considerable time, to send an expeditionary force into Asia, and make an attack upon Persia.

Alexander crossed the Hellespont into Asia with 40,000 Greek troops, and in a little more than a year over-ran the whole of Asia Minor. He next conquered Syria and Palestine and invaded Egypt. Turning northward he marched toward Babylon and defeated the Persian emperor, Darius Codomanus, at the battle of Arbela. This battle was the signal for the complete downfall of the great Persian Empire, and the substitution in its place of the empire of Alexander, the dominion of the Greeks.[11] From the battlefield of Arbela Alexander marched to Babylon, which opened its gates and received him without opposition.

Eventually continuing his advance through Persia, Alexander marched on northern India.[12] Traversing the Kabul Valley he penetrated the Punjab as far as the Beas river. Here his army refused to go any further, much to the disappointment of Alexander, who was dreaming of further conquests over the rich kingdoms of the Ganges valley. Unable to persuade his soldiers to advance further eastward he was compelled to turn south, along the valley of the Indus, until he reached the ocean. Leaving India he now returned to Babylon by way of Baluchistan. This invasion of India by Alexander took place rather more than twenty-two centuries ago.

It was in the tenth year since he had crossed the Hellespont into Asia that he reached Babylon on the return from India. During this time he marched his army in all his various campaigns a distance of about 6,000 miles, fighting many battles as he went. Over so vast a stretch of territory, and in so incredibly short a space of time, Alexander estab-

Monuments to the departed great of earth crumble and decay.

lished his authority. He was certainly one of the most wonderful military commanders of all history. But the fleeting nature of human greatness is illustrated by the fact that he died from fever in Babylon in the thirty-second year of his life.

After the death of Alexander the leading generals of the Greek army asserted themselves in the various sections of the empire, and Greek influence and supremacy was maintained for many years.

Thus passes in review the third of the great world kingdoms that Daniel had predicted would arise, Grecia—represented in the prophetic vision by the thighs of the image, composed of brass. We have thus seen a succession of three empires, Babylon, Medo-Persia and Grecia, corresponding to the head of gold, the breast and arms of silver, and the thighs of brass, in the symbolic image of the prophecy.

We have now to inquire, Whither shall we look for the rise of the fourth kingdom? This the prophet declared should be strong as iron, represented in the symbol by the iron legs of the image.

It is an interesting and significant fact that the second kingdom, Persia, although it rose in the East, directed its main energies toward the West, invaded Europe, and attacked Grecia, and did not greatly extend its supremacy eastward over India, as might have been expected. On the other hand the Greeks, a Western nation situated in Eastern Europe, did not seek their conquests farther West, in Europe, as might have been expected, but directed their main energies toward Persia and India. In these empires, then, the East and the West were for several centuries brought into close touch with each other. It would be impossible to estimate the influence on the future of the world both in the East and in the West, of the empires and civilizations that have been briefly described in these short chapters.

It will be found that the fourth kingdom, while rising still farther West, maintains like its predecessors the connection with the East. In this let us see that the development of this story (which is simply the record of the fulfilment of the prophecy given through Daniel Belteshazzar to Nebuchadnezzar 2,500 years ago) even in its details is of interest alike to the people of both Asia and Europe. And we shall see as we proceed that this inter-dependence of the interests of the East and the West increases as we approach the climax; for in that climax all nations are equally concerned, revealing as it does the future of the whole world.

### ROME—THE IRON MONARCHY

The next great empire to arise was that of the Romans, the fourth in this

ing the rise of four universal kingdoms in regular succession. This part of the prophecy we have seen was clearly fulfilled in the four great successive empires whose combined history of almost a thousand years we have briefly reviewed.

Since the fall of the Roman empire there has been a marked change in the national conditions prevailing in the world, which we must now observe, and compare with the prophetic outline given by Daniel.

### THE KINGDOM DIVIDED

Since the fall of the Roman empire the world has never again come under the domination of a single nation. Here is a sharp distinction between the history of the times preceding the close of the Roman supremacy and the history of the world since Rome's downfall. For almost a thousand years there was a constant tendency for some one nation to acquire such over-mastering power as to stand alone in dictating to and ruling practically the whole world. This period ended with the collapse of the Roman empire; and for more than fourteen hundred years since that time the kingdoms of the world have remained divided, notwithstanding repeated attempts to unite them again under one head.

This is exactly the state the prophet Daniel predicted would come about after the days of the fourth united kingdom. In the prophetic image the feet and toes were "part of iron and part of clay." In the explanation of the dream given to King Nebuchadnezzar it was clearly stated that this referred to a divided state of the kingdom in the latter part of the world's history.

"And whereas thou sawest the feet and toes, part of potters' clay, and part of iron, the kingdom shall be divided; but there shall be in it of the strength of the iron, forasmuch as thou sawest the iron mixed with miry clay. And as the toes of the feet were part of iron, and part of clay, so the kingdom shall be partly strong and partly broken."[17]

No better figure could have been used to represent the lack of cohesion that has prevailed between the various nations that have come into existence since the fall of the Roman empire. Iron and clay cannot be welded together by the hammer of the smith, neither can they be melted together in the crucible of the metallurgist. The heavier the beating and the fiercer the heat the more pronounced will be the tendency of these two elements to separate, rather than to unite. This well illustrates the failure of every attempt to re-unite the dominion of Rome after it had been divided. Each successive attempt has only demonstrated more clearly the complete finality of the division of the kingdom.

In the feet of the image there were ten divisions, so it is in harmony with the prophecy that we should expect to find a corresponding ten divisions in the Roman empire. This view is shown to be warranted by the fact that Daniel in another prophecy speaks of ten divisions issuing from the fourth empire.[18]

Toward the latter part of her history the Roman state was assailed with increasing vehemence by barbarian tribes descending from the colder regions of Northern Europe. One of these tribes, the Vandals, crossed the Mediterranean and established itself in northern Africa, and from thence disputed the Roman supremacy of the seas. The Suevi, the Burgundians, the Alemanni, and the Franks, burst upon the Western provinces. The Goths fell upon Italy itself. In the empire's crisis the imperial legions were withdrawn from Britain,[19] which was soon afterwards invaded and occupied by the Angles and Saxons. As a result of these fierce and persistent attacks the empire gradually crumbled and fell, and the invading tribes retained the territory they had seized and settled down to become permanent nations. The conquering tribes who thus fell heirs to various sections of Western Rome were ten in number, and from them have sprung many of the leading nations of modern Europe.[20]

These nations occupied what may be justly regarded as the territory of Rome proper,[21] as distinguished from that territory which Rome had taken over from Grecia and Persia, her predecessors. These kingdoms of Western Europe may also be regarded as the successors of Rome in that they are the ones that have continued so many of her laws and customs, and that have perpetuated and improved upon her civilization.

Commenting on the divided state of the Roman empire, likened to a mixture of iron and clay, Daniel said the kingdom would be "partly strong and partly broken" (or fragile). We see this comparative strength and weakness manifested in the condition of the European powers to this present day. Some of them have much of that iron-like strength that was characteristic of Rome itself, whereas some of the smaller powers are in comparison weaker and easily broken as clay.

### MODERN ATTEMPTS AT WORLD DOMINATION

For more than fourteen centuries the divided state of the Roman empire has persisted, despite all efforts to re-erect the imperial structure. Diplomacy and royal match-making have not been the only means used to attain this ambitious end. Time and again great military leaders have arisen who have sought to

accomplish by armed force that which they could see would evidently not be brought about by any other means. But here again every attempt has in the end failed ignominiously, even though some for a time have had the appearance of success.

In the eighth century of the Christian era, Charlemagne, king of the Franks, was so successful in bringing other provinces under his control that he was proclaimed Roman emperor. But his supremacy proved to be transitory, and the empire quickly fell away again to its accustomed divisions.

A much more striking attempt to again unite Europe and the world under one sceptre is seen in the career of Napoleon Bonaparte, who about the beginning of the nineteenth century made himself practically master of continental Europe, a claim that for a time was seriously contested only by Britain.

Napoleon, the son of a Corsican notary, so appealed to the imagination of the French people as their military leader that they supported him in a policy of conquest and domination of the neighbouring European states. He also cherished plans for repeating the exploits of Alexander in Asia just as he had done to a large degree those of Cæsar in the European theatre of operations.

At the height of his success Napoleon was crowned emperor of the French in 1804, and the next year was proclaimed also king of Italy, receiving the iron crown of the old Lombard kings, although he had promised to keep the crowns of France and Italy separate. He placed his brothers and other relatives in positions as rulers of the various countries of Western Europe, boasting that "those who will not rise with me shall no longer be of my family. I am making a family of kings attached to my federative system."[22]

It was evidently his ambition to reunite Europe and the world under one federal head, and in this for a time he seemed largely successful. The lapse of a few years, however, soon saw the wreck of the ambitious schemes of Napoleon. He was crushingly defeated at Waterloo, and exiled to St. Helena, where he died some six years later.

The twentieth century has witnessed the failure of two other attempts to place within the hands of one ruler an over-mastering influence over the other kingdoms of Europe. Had Germany succeeded in her aims during two world wars it is evident that she would have been in a position to practically dominate the world. Through her ally and vassal, Austria-Hungary, she was to have an open road to Constantinople and thence through to the Persian Gulf. Had she been successful, the probabilities would have been strongly in favour of

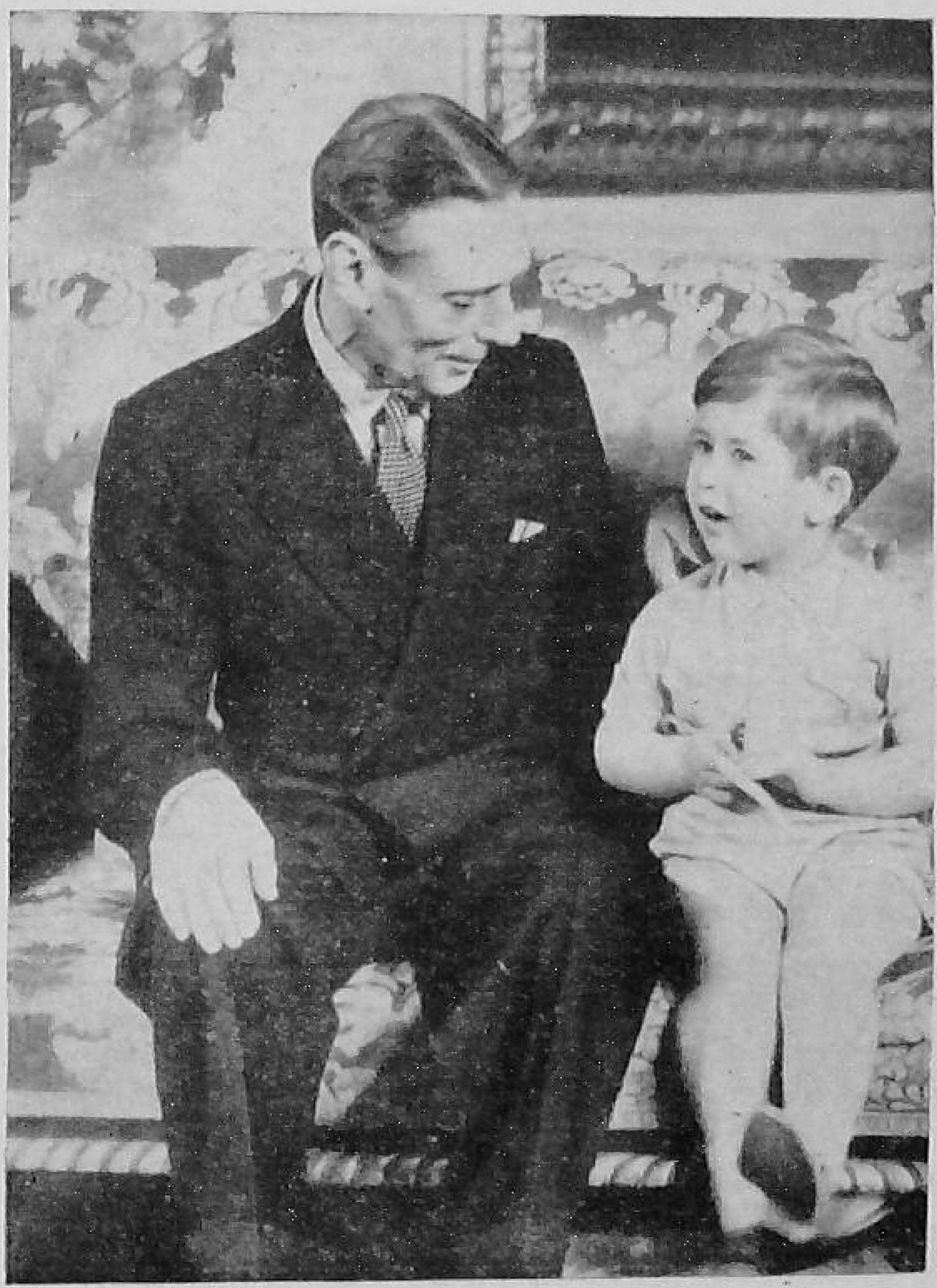


Photo by Govind Lal

The late King George VI and young Prince Charles.

the consolidation of all the Germanic peoples. This would have provided a solid base for the erection of a world empire in the form of an immense wedge from the North Sea to the Persian Gulf. It is evident that such an empire might soon have dominated Asia as well as Europe, and would have commanded a greater empire than that of ancient Rome. But such was not to be. Although the opposing Allied powers were not ready for war on either occasion, while the Central powers were prepared to an amazing degree; although at the outset it looked as if nothing could resist the onward rush of the German forces; and although for the first years the fortunes of war

seemed to have gone overwhelmingly in favour of the Central powers; yet, after all, the failure of those powers has been a complete surprise, surpassing anything that could have been predicted by the most hopeful of the Allies during the course of both World War I and World War II.

Germany thought to gain domination of the world through force of arms and failed in both attempts. The Allied nations also recognized the value of unity and sought between World War I and World War II to unite the world in the League of Nations. Today the halls of the palace of the League lie silent—a monument to another failure to unite the world under one flag.

Today, after the end of World War II, the United Nations Organization debates about world unity.

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[17] Daniel 2:41, 42.
[18] "After this I saw in the night visions, and behold a fourth beast, dreadful and terrible, and strong exceedingly; and it had great iron teeth: it devoured and break in pieces, and stamped the residue with the feet of it: and it was diverse from all the beasts that were before it; and it had ten horns." "Thus, he said, the fourth beast shall be the fourth kingdom upon earth, which shall be diverse from all kingdoms and shall devour the whole earth, and shall tread it down, and break it in pieces." "And the ten horns out of this kingdom are ten kings that shall arise." Daniel 7:7, 23, 24.
[19] Goodspeed's *History of the Ancient World*, pp. 502-505.
[20] The following are the names of the ten tribes that succeeded in establishing themselves on the ruins of the Roman empire, the names of modern European powers descended from or connected with some of the tribes being noted in brackets: (1) Ostrogoths, (2) Visigoths (Spanish), (3) the Heruli, (4) the Suevi (Portuguese), (5) the Anglo-Saxons (British), (6) the Vandals, (7) the Lombards (Italians), (8) the Franks (French), (9) the Alemanni (Germans), and (10) the Burgundians. For further historical references and further statements concerning the rise of these kingdoms and their continuance see Gibbon's *Rise and Fall of the Roman Empire*.
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# The Kingdom to Come

THE student of Daniel's prophecy cannot but be impressed with the fact that its most important feature is the prediction of a final, enduring, universal kingdom. The gold, silver, brass, and iron, and the iron mixed with clay, in the various component parts of the image, each served to represent a kingdom or kingdoms of a temporary nature. These kingdoms were to succeed one another in bearing rule over the earth, but none was promised a permanent existence.

In the latter part of the vision, however, a new element is introduced, and a radical change in the course of events is predicted. The stone, cut out of the mountain without hands, smote the image upon its feet, and eventually ground it to pieces, reducing the gold, silver, brass, iron and clay to powder, which was blown away by the wind. Only the stone remained, and it was seen to grow until it became a great mountain, and finally filled the whole earth. It is evident then, that whatever is represented by this great stone is the real objective of the prophecy. The various metals of the image, interesting and attractive though they may be, clearly represent something of a transitory nature, for after a brief time they are seen no more. But the great stone is said to refer to something permanent, in radical contrast to the inherent liability to change and displacement represented in the kingdoms of the image.

This stone Daniel declares to represent a kingdom that God will establish in the earth:

"And in the days of these kings shall the God of heaven set up a kingdom, which shall never be destroyed: and the kingdom shall not be left to other people, but it shall break in pieces and consume all these kingdoms, and it shall stand forever.

"Forasmuch as thou sawest that the stone was cut out of the mountain

without hands, and that it break in pieces the iron, the brass, the clay, the silver, and the gold; the great God hath made known to the king what shall come to pass hereafter." Daniel 2:44, 45.

"In the days of these kings." That is, in the days of the kingdoms that were to come into existence as a result of the division of the Roman empire, of which the prophet had been speaking in the preceding sentences. We have already seen that these kingdoms have been in existence for some fourteen centuries past, and that they have fulfilled in a remarkable way all the specifications of the prophecy with regard to themselves. This completes the history of the world as it is represented in the metals of the prophetic image. Beginning with the head of gold, which represented Babylon, we have seen that the breast and arms of silver represented Medo-Persia; the thighs of brass, Grecia; the legs of iron, Rome; and the iron and clay of the feet and toes, the ten kingdoms that came out of Rome. The next great event then, is represented in the smiting of the image, by the great stone, which is to take place "in the days of these kings."

These are the leading kingdoms of our present day, for the nations of Western Europe which we have already shown to be the joint successors of imperial Rome are the nations that colonized North and South America, Africa and the Antipodes, and have brought their laws and civilization, the germ of which they inherited from Rome, to a great part of Asia also. In no other way could the prophet have more concisely and briefly represented our modern world than he has done by this reference to the leading divisions of the Roman empire, for these nations, and the nations which have sprung from them, and the various dependencies of both, taken together, comprise by far the greater part of the present-day world. So the smiting of the image upon the feet and toes clearly refers to an event that will affect the whole world, and not merely the original territory of the ten kingdoms. This view is borne out also by the fact that the stone that smites the image fills the whole earth. There is then not a nation in the world today that will not be affected by the setting up of the kingdom that the stone represents.

This prophecy was given to make known the future of the world. Daniel said to Nebuchadnezzar, "The great God hath made known to the king what shall come to pass hereafter." To Nebuchadnezzar, the setting up of the final universal kingdom, represented by the great stone, must have seemed to be an event connected with the distant future, for many empires must first rise and run their successive courses. But we

today are situated differently. The predicted empires have risen and fallen. Nothing now remains to be fulfilled except the setting up of the final universal kingdom. So far as this particular prophecy is concerned the future of the world is now wrapped up in its prediction concerning that coming kingdom.

In the minds of the men of all nations today there exists a profound anxiety and uncertainty as to the future. Just as Nebuchadnezzar pondered in his day over the problem of the future and what it might bring forth, so today thinking men in every land are concerned and perplexed over the same problem. What is to be the future of the world? God answered the question for Nebuchadnezzar in making known to him the prophecy that forms the subject of these chapters. God answers the question for the world today in the same prophecy. With this wonderful revelation from God we need not be in any uncertainty regarding the future. Daniel declared that, "The dream is certain, and the interpretation thereof sure." We have found the dream to be "certain" and its interpretation "sure" as we have tested its predictions by comparing them with the bold outlines of the world's history of the past. All that the prophecy has said of the events of the 2,500 years that have elapsed since the days of Daniel has been wonderfully fulfilled. We may rest assured that the predictions concerning the one remaining kingdom will be fulfilled with equal accuracy.

The prediction of the prophecy, then, is that in the days of the kingdoms of this present age, the God of heaven will Himself set up a kingdom in the earth that will exist for all eternity. Here is brought to view a profound and radical change; a change from the faulty, uncertain, short-lived kingdoms of men, to the perfect and immovable kingdom of the eternal God. We may reasonably inquire, In what way is this great change to be brought about? The answer is given in the prophecy itself. The stone smote the image upon the feet, broke it to pieces and ground it to powder, so that the image was blown away and entirely disappeared. This indicates that when the kingdom of God is set up it will result in the utter destruction and complete removal of all the kingdoms of the world of this present time. "It shall break in pieces and consume all these kingdoms, and it shall stand forever."

Every scheme and plan and pact and organization which humanity has tried in an effort to weld together the broken fragments of the human race, has failed. Within our memory the League of Nations collapsed. Mr. Wilson's prediction of "the war to end war" collapsed. Mr. Roosevelt's four freedoms are collapsing. Today, feverishly,

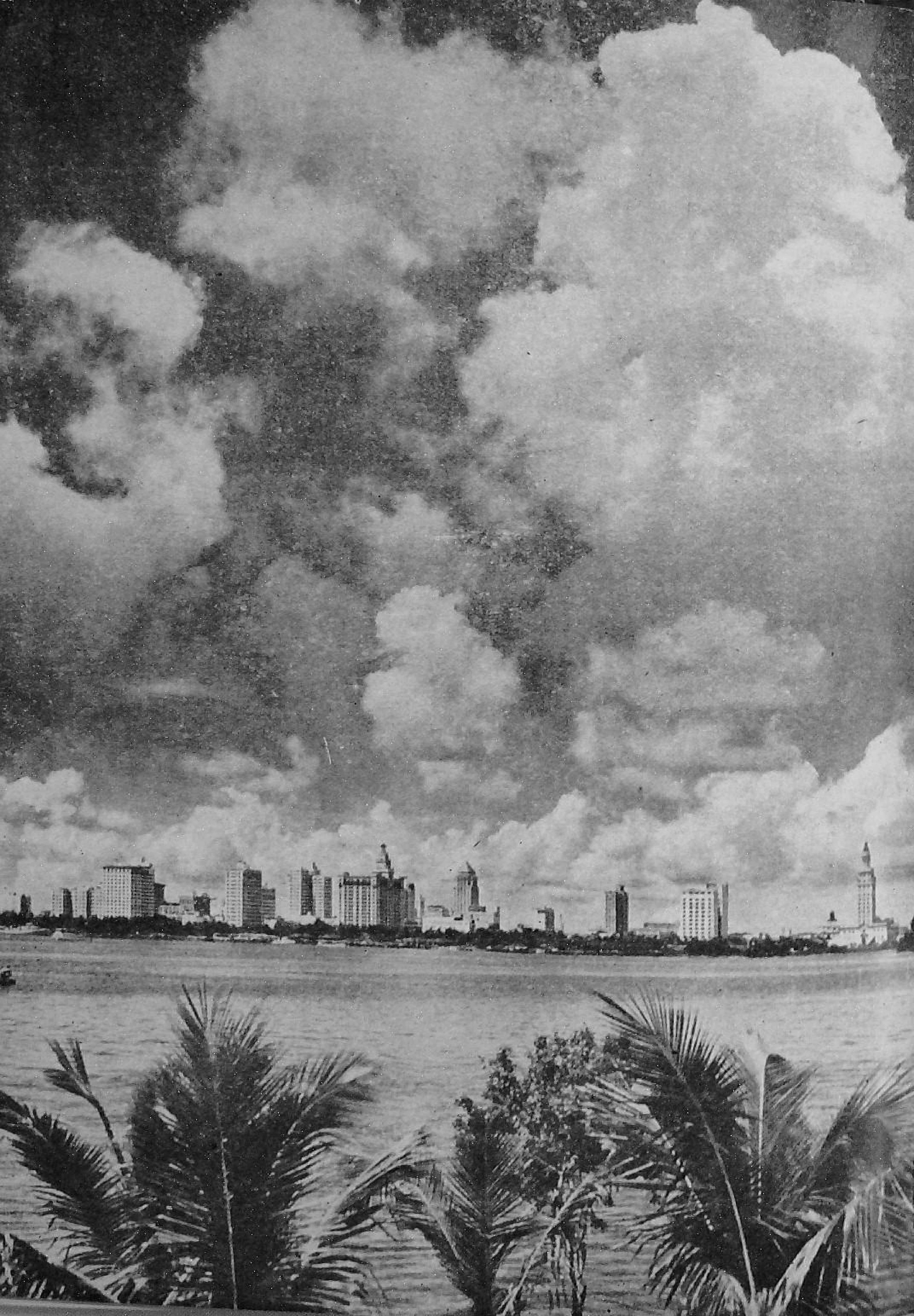
Photo by Acme

urgently, diligently, the world's statesmen are pounding on the anvil of the United Nations, struggling with almost superhuman effort to weld scores and hundreds of discordant elements into one cohesive mass. And General Douglas McArthur, in his speech at the surrender of Japan, warned that if the world does not now succeed in amalgamating, there is no escape from Armageddon and the end of civilization.

God foresaw our day, foresaw man's futile efforts, foreknew the world problems, the animosities, the hatreds, the lust for power and wealth, the dishonesty, intrigue, and double dealing. And so, through Daniel, He said, "They shall not cleave one to another." These things, said Daniel, are "what shall be in the latter days." Daniel 2:28.

One ray of hope, and only one, shines through the thickening gloom. Said Daniel: "In the days of these kings shall the God of heaven set up a kingdom, which shall never be destroyed: and the kingdom shall not be left to other people, but it shall break in pieces and consume all these kingdoms, and it shall stand forever. Forasmuch as thou sawest that the stone was cut out of the mountain without hands, and that it brake in pieces the iron, the brass, the clay, the silver, and the gold; the great God hath made known to the king what shall come to pass hereafter: and the dream is certain, and the interpretation thereof sure." Verses 44, 45.

God's kingdom will not be ushered in through the gateway of politics. A kingdom which will stand forever must have subjects who will live forever, and eternal life is to be bestowed only at the second coming of Jesus Christ in the glory clouds of heaven, attended by all His holy angels. The stone which smote the image was not quarried by human hands. Schemes, plans, devisings, pacts of men, did not bring its crushing blow. It was supernatural. It was heaven-sent, and thus it will be in fact.



# *Qualifications of Citizenship*

THE first great and indispensable requisite in a citizen of any kingdom is loyal obedience to its laws. In order that men may become citizens of God's future eternal kingdom it is necessary that they become willingly obedient to His Word in this present temporal life. Christ came into this world to teach us the way of life. All who receive His words into the heart and obey them in the life will thus become citizens of the future kingdom.

Jesus said: "Therefore whosoever heareth these sayings of Mine, and doeth them, I will liken him unto a wise man, which built his house upon a rock. And the rain descended, and the floods came, and the winds blew, and beat upon that house; and it fell not; for it was founded upon a rock.

"And every one that heareth these sayings of Mine, and doeth them not, shall be likened unto a foolish man, which built his house upon the sand: and the rain descended, and the floods came, and the winds blew, and beat upon that house; and it fell: and great was the fall of it." Matthew 7:24-27.

In order to be able to obey the words of Christ it is necessary for a man to have a change of heart. Since the sin of our first parents, Adam and Eve, their children of every nation have been sinful in nature. The natural tendency of all mankind is to be selfish. It is easier for all men to follow the desires of the fleshly or lower nature than it is for them to follow the higher spiritual life. Christ's life was a perfect example of goodness, patience, meekness, humility, cheerfulness, obedience, courage, perseverance, faith, self-control, self-sacrifice, kindness and love. He requires us to follow His example in these things. This we cannot do without a change of heart. Consider, for instance, the love of Christ. It is easy for us to love our friends, but Christ requires us to love our enemies. He loved His enemies and died to save them. Take as another

instance the patience of Christ. If we do wrong and are punished for it we sometimes find it difficult to bear our punishment patiently; but Christ teaches us to be patient even when we are made to suffer for doing right. Consider the courage of Christ. Many men are willing to die bravely fighting in battle; but Christ had the courage to do right, to obey and teach the truth of God, even though the whole world was against Him. It takes far more courage and faith to confess God and His truth in the face of suffering and persecution and shame and even death, as Christ did, than it does to die in battle. And yet this is the very courage Christ requires us to have.

### Citizens by Birth

It is necessary for a man first of all to realize that he cannot of himself, in his own nature, fulfil the righteousness of Christ. There must come a change of heart. For this reason Jesus said:

"Verily, verily, I say unto you, Except a man be born again, he cannot see the kingdom of God." John 3:3.

This change, which Christ describes as a new birth, is brought about by the full surrender of the individual soul to God through the personal acceptance by faith of His Son, Jesus Christ, as the Saviour from sin, and the reception of His Word into the heart.

"Being born again, not of corruptible seed, but of incorruptible by the Word of God, which liveth and abideth forever." 1 Peter 1:23.

### The King's Requirements

That which Christ requires of those who are to be subjects of His kingdom is very different from what many would expect. Jesus said:

"Blessed are the poor in spirit: for theirs is the kingdom of heaven.

"Blessed are the meek: for they shall inherit the earth.

"Blessed are the pure in heart: for they shall see God.

"Blessed are the peacemakers: for they shall be called the children of God.

"Blessed are they which are persecuted for righteousness' sake: for theirs is the kingdom of heaven." Matthew 5: 3, 5, 8-10.

"Suffer the little children to come unto Me, and forbid them not: for of such is the kingdom of God.

"Verily I say unto you, Whosoever shall not receive the kingdom of God as a little child, he shall not enter therein." Mark 10:14, 15.

### Acknowledging the King

In order for a man to be accepted by Christ as a subject for His eternal

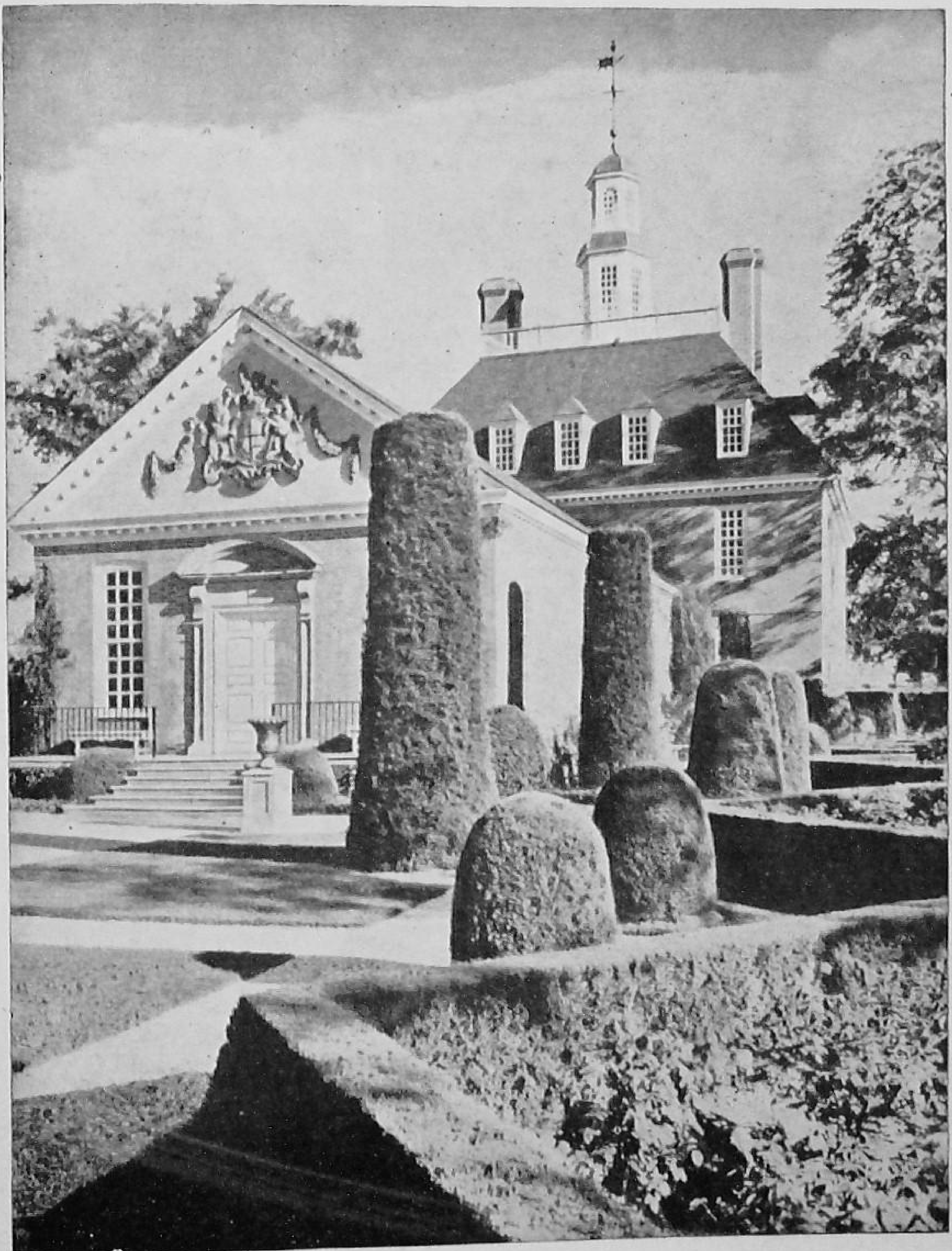


Photo by U. S. I. S.
In colonial times the king's representative ruled Maryland, U. S. A., from this building.

kingdom, it is necessary for him to confess Christ before men in this present world regardless of consequences. Jesus said:

"Whosoever therefore shall confess Me before men, him will I confess also before My Father which is in heaven.

"But whosoever shall deny Me before men, him will I also deny before My Father which is in heaven." Matthew 19:32, 33.

"Whosoever therefore shall be ashamed of Me and My words in this adulterous and sinful generation; of him also shall the Son of man be ashamed, when He cometh in the glory of His Father with the holy angels." Mark 8:38.

"No man, having put his hand to the plough, and looking back, is fit for the kingdom of God." Luke 9:62.

### Loyalty through Suffering

To acknowledge Christ in this way may result in difficulty and persecution; but when we reflect that Jesus suffered for us, even unto death, it is only right that we should be willing to suffer for Him. Christ Himself said:

"He that loveth father or mother more than Me is not worthy of Me: and he that loveth son or daughter more than Me is not worthy of Me. And he that taketh not his cross, and followeth after Me, is not worthy of Me." Matthew 10:37, 38.

"In the world ye shall have tribulation: but be of good cheer; I have overcome the world." John 16:33.

The apostle Paul said that, "We must through much tribulation enter into the kingdom of God" (Acts 14:22), and that "All that will live godly in Christ Jesus shall suffer persecution." 2 Tim. 3:12.

The vast majority of men would rather go the way of the world than become true followers of Christ. This is true of every nation. It was true of the Jews, Christ's own nation. It is true of the European nations. It is true of the people of the East. If we are to be true followers of Christ, we must be prepared to stand with the minority for Him, or perhaps to stand alone. But He stood alone for us, with all the world against Him, for even His own disciples forsook Him and fled; shall we not be willing to stand alone for Him, if need be?

Jesus said:

"Enter in at the straight gate; for wide is the gate, and broad is the way, that leadeth to destruction, and many there be which go in thereat: because straight is the gate, and narrow is the way, which leadeth unto life, and few there be that find it." Matthew 7:13, 14.

But then to the little band of His faithful followers of every nation, Christ says:

"Fear not, little flock, for it is your Father's good pleasure to give you the kingdom." Luke 12:32.

### Disobedient Subjects Rejected

There are some who profess to be Christians but who are not at heart followers of Christ. To these Jesus says:

"And why call ye Me, Lord, Lord, and do not the things which I say?" Luke 6:46.

And unless such repent, He will in the day of judgment say to them:

"I tell you, I know you not whence ye are; depart from Me, all ye workers of iniquity. There shall be weeping and gnashing of teeth, when ye shall see Abraham, and Isaac, and Jacob, and all the prophets in the kingdom of God; and ye yourselves thrust out. And they shall come from the east, and from the west, and from the north, and from the south, and shall sit down in the kingdom of God. And behold, there are last which shall be first, and there are first which shall be last." Luke 13:27-30.

The apostle Paul says:

"Know ye not that the unrighteous shall not inherit the kingdom of God? Be not deceived: neither fornicators, nor idolaters, nor adulterers, nor effeminate, nor abusers of themselves with mankind, nor thieves, nor covetous, nor drunkards, nor revilers, nor extortioners shall inherit the kingdom of God." 1 Corinthians 6:9, 10.

Jesus says:

"As therefore the tares are gathered and burned in the fire; so shall it be in the end of the world. The Son of man shall send forth His angels, and they shall gather out of His kingdom all things that offend, and them which do iniquity; and He shall cast them into a furnace of fire: there shall be wailing and gnashing of teeth. Then shall the righteous shine forth as the sun in the kingdom of their Father. Who hath ears to hear, let him hear." Matthew 13:40-43.

### The Will of God

It is not God's will that any should perish. "For God so loved the world, that He gave His only begotten Son, that whosoever believeth in Him should not perish, but have everlasting life." John 3:16.

"Repent ye therefore, and be converted, that your sins may be blotted out, when the times of refreshing shall come from the presence of the Lord. And He shall send Jesus Christ, which before was preached unto you. Whom the heavens must receive until the times of restitution of all things, which God hath spoken by the mouth of all His holy prophets since the world began." Acts 3:19-21.

"I saw another angel fly in the midst of heaven."

# The Time of the Judgment

IN the Apocalypse symbolic angels are used to picture the proclamation of the various phases of the final gospel message to all mankind. Since angels are the special messengers of God, it is appropriate that the church, as heaven's evangelizing agency on earth, should be thus symbolized.

One of these apocalyptic representations reads: "I saw another angel fly in the midst of heaven, having the everlasting gospel to preach unto them that dwell on the earth, and to every nation, and kindred, and tongue, and people, saying with a loud voice, Fear God, and give glory to Him; for the hour of His judgment is come: and worship Him that made heaven, and earth, and the sea, and the fountains of waters." Revelation 14:6, 7.

When the apostle Paul stood before Felix and reasoned with him of a "judgment to come" at which he must answer before the heavenly tribunal for his conduct, the intemperate and wicked Roman governor trembled, and hoped for a more convenient season to repent and reform. (Acts 24:25.) The same apostle warned the church in Rome of the time when "we shall all stand before the judgment seat of Christ," and he said to the Corinthian church, "We must all appear before the judgment seat of Christ; that everyone may receive the things done in his body, according to that he hath done, whether it be good or bad." Romans 14:10; 2 Corinthians 5:10.

That the judgment is a definitely appointed future event is evident from the following texts: "Because He hath appointed a day, in the which He will judge the world in righteousness by that Man whom He hath ordained; whereof He hath given assurance unto all men, in that He hath raised Him from the dead." Acts 17:31. "The Lord knoweth how to deliver the godly out of temptations, and to reserve the unjust unto the day of judgment to be punished."

2 Peter 2:9. The same writer speaks of the time when "judgment must begin at the house of God: and if it first begin at us, what shall be the end of them that obey not the gospel of God?" 1 Peter 4:17.

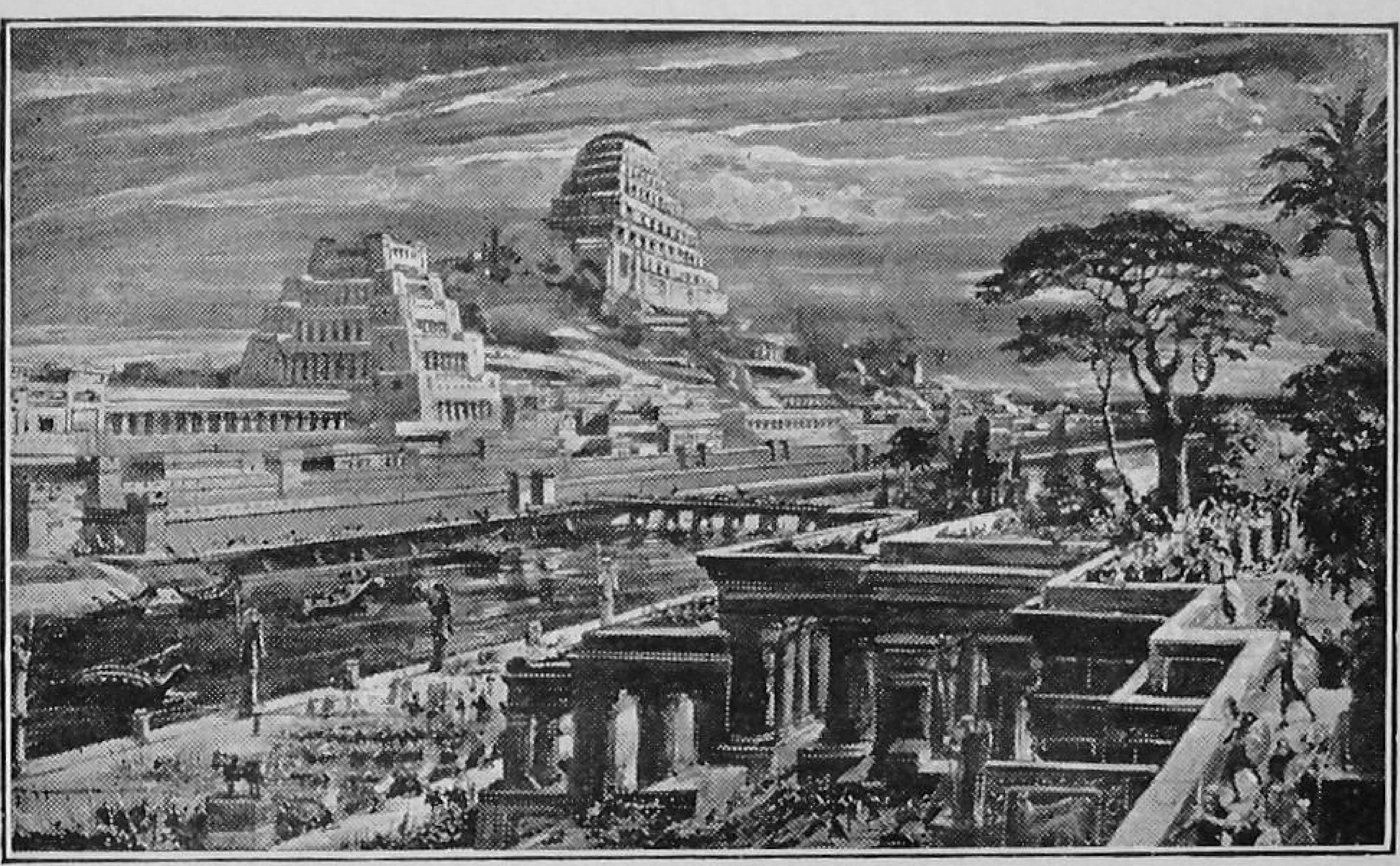
It is evident from these Scriptures that the judgment will begin at an appointed time. When the tribunal would begin its solemn work in heaven, a divinely commissioned m e s s a g e would be heralded to the world announcing to every creature that "the hour of His [God's] judgment *is* come." It is also evident from Revelation 14:6-14 that there will be time between the beginning of the judgment and the second coming of Christ, for the judgment-hour message to be carried to all parts of the world.

No such message could be given without definite Scriptural evidence on which to base the proclamation. The date must be so clearly located in some Old Testament prophecy that the evidence cannot be refuted. The time of the judgment is clearly set forth in the visions recorded in the seventh, eighth, and ninth chapters of the book of Daniel.

In the first vision, the four great universal empires of Babylon, Medo-Persia, Greece, and Rome are symbolized by ravenous beasts of prey. The fourth beast, representing pagan Rome, has ten horns, which the prophet says are ten kings symbolizing the ten divisions. Among the ten is seen another horn arising which has the eyes of a man and a mouth speaking great things. This eleventh horn represents ecclesiastical Rome, which would rule the world and persecute the saints for more than twelve centuries. Seven prophecies in Daniel and the Revelation give the duration of papal supremacy as 1260 years, and history sets the time from 538 to 1798. The prophet declares that just following this period "the judgment shall sit."

In this prophecy the judgment scene is described as occurring between the close of the 1260 years and the coming of the Son of man in the clouds of heaven. "I beheld till the thrones were cast down, and the Ancient of days did sit, whose garment was white as snow, and the hair of His head like pure wool: His throne was like the fiery flame, and His wheels as burning fire. A fiery stream issued and came forth from before Him: thousand thousands ministered unto Him, and ten thousand times ten thousand stood before Him: the judgment was set, and the books were opened." Daniel 7:9, 10.

In the next chapter another vision covers the same period with additional details, especially in regard to the work of the Papacy during the 1260 years and of the judgment that would follow. For the prophet's benefit a question is



An artist's conception of how the great city of Babylon must have looked at the time of Belshazzar.

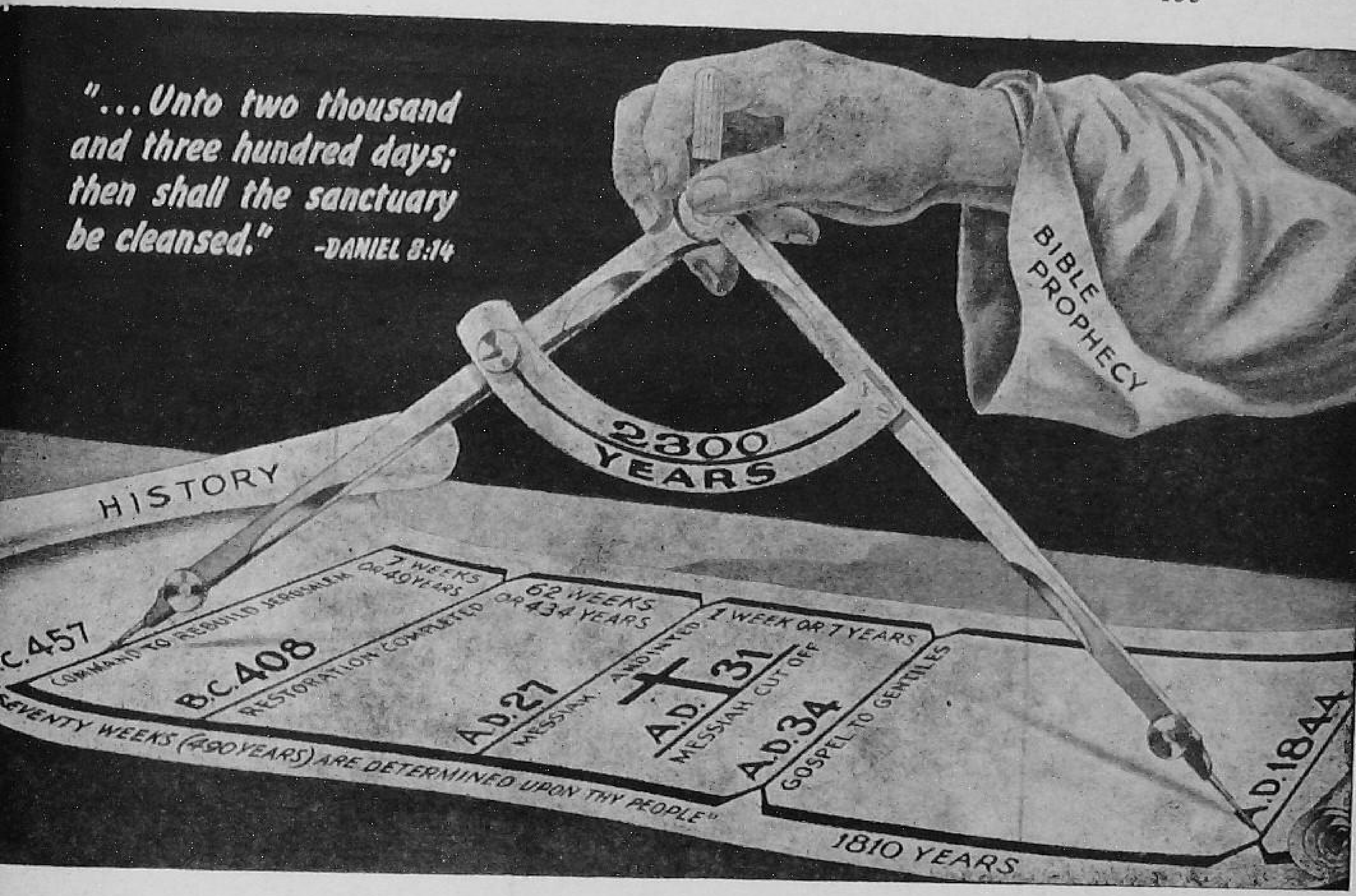
asked as to how long this apostate power would continue to trample underfoot the true sanctuary service without being called to account by the heavenly tribunal that was to "take away his dominion, to consume and to destroy it unto the end." The answer comes back, "Unto two thousand and three hundred days; then shall the sanctuary be cleansed." This is equivalent to saying, "Then shall the judgment convene." In the seventh chapter this event is called the judgment, and in the eighth, the cleansing of the sanctuary. The day on which occurred the cleansing of the typical sanctuary was called the Day of Atonement, or judgment. This work would begin at the close of the 2300-day period and continue till the close of probation and the second advent of Christ.

Daniel was so greatly puzzled by the vision, especially of the apostate church and the terrible persecutions of God's people, that he was terrified and fell on his face. He was told that the vision pertained to "the time of the end." Just before he fainted and became sick

because of what he had seen in vision, the angel Gabriel told him that the vision of the 2300-day time period was true, but would not then be understood, because "it shall be for many days," or "it relates to the far future." (Moffatt.) The prophet declared that he was "astonished at the revelation, and could not understand it." (Fenton.)

After his days of sickness Daniel began to search and pray for light, especially in regard to the unexplained portion of the vision, the part pertaining to the time period. He searched the revelations of other prophets and prayed most earnestly for fuller light. He confessed his own sins and the sins of his people, so that nothing would hinder the answer to his prayer. The record is that while he was praying the angel Gabriel, whom he "had seen in the vision at the beginning," returned to complete the unfinished task of interpretation that had been cut short by Daniel's faint and sickness. The first thing he said to the prophet was, "I am now come forth to give thee skill and understanding. . . . Therefore understand the matter, and consider the vision." The "vision" to be considered was the one not fully explained and which Daniel said he had not understood, and the "matter" was the time prophecy which had not been interpreted because of the interference.

We may expect the angel of prophecy to begin where he left off and complete the interpretation of the previous vision, explaining the 2300-prophetic-day period that reaches to "the time of the end" and to the final stage of its fulfilment in connection with the closing scenes of earth's history. That is exactly where Gabriel begins his further explanation. He said: "Seventy weeks are determined upon thy people and upon thy holy city, to finish the transgression, and to make an end of sins, and to make reconciliation for iniquity, and to bring in everlasting righteousness, and to seal up the vision and prophecy, and to anoint the most holy. Know therefore and understand, that from the going forth of the commandment to restore and to build Jerusalem unto the Messiah the Prince shall be seven weeks, and threescore and two weeks: the street shall be built again, and the wall, even in troublous times. And after threescore and two weeks shall Messiah be cut off, but not for Himself: and the people of the prince that shall come shall destroy the city and the sanctuary; and the end thereof shall be with a flood, and unto the end of the war desolations are determined. And He shall confirm the covenant with many for one week: and in the midst of the week He shall cause the sacrifice and oblation to cease, and for the overspreading of abominations He shall




make it desolate, even until the consummation, and that determined shall be poured out upon the desolate." Daniel 9:24-27.

The 2300 days and the seventy weeks constitute a prophecy so remarkable in the exactness of its predictions and in the clocklike precision of its fulfilment that scepticism stands before it amazed and confounded. It is the key prophecy of the Scriptures, that unlocks the doorway into the future and reveals the times and purposes of the Most High. Its chief purpose is to point to the time and work of the Messiah and to sum up the glorious consequences of the plan of salvation which would centre in the cross of Calvary. It also forecasts the terrible results of rejecting Him on whom alone our hopes depend. So conclusively does this prophecy identify Jesus as the true Messiah that rabbis have forbidden their people to study it.

The visit of the angel to complete the interpretation of the vision took place in the first year of Darius in 538 B. C., just following the downfall of Babylon

and only two years before the close of the time prophecy of Jeremiah limiting the period of Jewish captivity to seventy years. One prophetic time period was about to end and another to begin. In his perplexity over the 2300 days of the vision, Daniel studied the prophecy of the seventy years and doubtless thought they must be related. "The desolations of Jerusalem" were to continue for seventy years, and Daniel's vision also pictured the destruction of the beloved city and people. In response to his prayer the angel revealed to him first of all that the seventy years of captivity would be followed by another time period of seventy sevens of years, just seven times as long.

We are here dealing with prophetic time, and in symbolic prophecy a day represents a year. (See Numbers 14:34; Ezekiel 4:6.) Alexander Campbell, during a debate with a Catholic priest, said that "there is no controversy among Catholics or Protestants" in regard to a prophetic day representing a literal year.

This was a familiar custom to Daniel, for the Jews divided time into not only weeks of days but also weeks of years. In pointing out the sabbatic year the Lord said to Moses, "Thou shalt number seven sabbaths of years unto thee, seven times seven years; and the space of the seven sabbaths of years shall be unto thee forty and nine years." Leviticus 25:8. The *Pulpit Commentary* declares that time was reckoned by weeks to remind Israel of the perpetual obligation of the Sabbath. The Moffatt translation of our text reads, "Seventy weeks of years are fixed for your people." This is the true meaning.

Seventy weeks of years or 490 years, were to be "determined" or "cut off" of the 2300 years for the benefit of the Jewish people and for the accomplishment of definite results in the plan of redemption. This part that was measured out and cut off of the whole would reach to the close of the probation of the Jewish nation and their rejection as God's chosen people. The final acts in the great drama of their national existence would be the rejection and murder of their own Messiah and the persecution of His disciples.

The starting point of both the seventy weeks and the 2300 years is definitely stated as "the going forth of the commandment to restore and to build Jerusalem." Sixty-nine weeks would reach to "Messiah the Prince," and Christ became the Messiah or "anointed One" at His baptism. Thus the beginning and end of the sixty-nine weeks of years is bounded by historical events of such an important and authenticated nature that there is no room for doubt. The predicted events must be just 483 and 490 years apart, or the significance of the prophecy is destroyed. All three periods begin at the same time and with

the same event, the two lesser being cut off of the 2300 years that reaches to "the time of the end."

The time periods would begin with a commandment, or decree, to restore and rebuild Jerusalem, which was then lying in ruins and uninhabited. Cyrus came to the throne of Medo-Persia in the year 536 B. C., the very year which closed the seventy-year period of captivity. One of his first acts was to issue the decree prophesied of through Isaiah more than a century and a half before. Josephus declared that when Cyrus read the prophecy of Isaiah, calling him by name and forecasting his mission, he called together the most eminent Jews and "gave them leave to go back to their own country, and to rebuild their city Jerusalem, and the temple of God." It was doubtless Daniel who called the king's attention to the divine prophecy and urged him to fulfil it.

However, it was not the making of the decree but its "going forth," or execution, that was to mark the beginning of the time periods. The decree of Cyrus in 536 had to be confirmed or re-issued by two later kings before it was complete, Darius Hystaspes in 519 and Artaxerxes Longimanus in 457 B. C. The Lord speaks of them as only one decree for it took the last one to fulfil all the provisions of the prophecies. That this is true is evident from Ezra 6:14, which declares that the work of re-building was finished "according to the commandment of the God of Israel, and according to the commandment of Cyrus, and Darius, and Artaxerxes king of Persia." It says "commandment" and not "commandments." The commandment went forth in execution in 457 B. C.

This is not only the date in the margin of the Bible, but it is confirmed by the Greek Olympiads and the Canon of Ptolemy, whose chronology was made in the second century of the Christian Era. The date is also confirmed by the events that took place at the close of the sixty-nine and seventy week periods. Sixty-nine weeks of years, or 483 years, from 457 B. C. brings us to 27 A. D., the year Jesus was baptized and anointed by the Holy Spirit for His mission as the Messiah. "Messiah" means "the Anointed," and it was at His baptism that "God anointed Jesus of Nazareth with the Holy Ghost and with power." Acts 10:38. "Unto Messiah the Prince" is translated "unto Christ the Prince" in the Douay Bible.

The divine accuracy of these prophetic revelations fills us with awe and wonder. Jesus not only came to the world in fulfilment of prophecy, but He arrived and began His mission exactly on time. It was "when the fullness of the time was come," that "God sent forth His Son, made of a woman,

made under the law, to redeem them that were under the law, that we might receive the adoption of sons." Galatians 4:4, 5. When the great clock of time pointed to the hour determined by the heavenly council, Jesus was born in Bethlehem. He is indeed the true Messiah.

The seventy weeks of years are divided into three periods. Seven weeks or forty-nine years would cover the restoration period "even in troublous times," as described in the books of Ezra and Nehemiah. Sixty-two weeks or 434 years more would reach to the baptism of the Messiah. This period represents the long and silent stretch of years between Malachi and John the Baptist, the last prophet of the old and the first of the new dispensation; between "the word of the Lord to Israel by Malachi" and the day when "the word of God came unto John the son of Zacharias in the wilderness."

The last part of the seventy weeks is the "one week," or seventieth seven. This was the climax of the prophecy. In fact, its events make it the central week of years in all human history. The beginning of this prophetic and historic week is definitely located by the anointing of Messiah the Prince at His baptism in 27 A. D. The events of this last tragic week are described in Daniel 9:26, 27. The first part of each of these two verses refers to the Messiah, and the second part to the desolating judgments that would result in His rejection and crucifixion—His being "cut off" by His people.

The "cutting off," or crucifixion, of the Messiah was to take place "after" and not *in* the sixty-nine weeks. In fact, it was to happen "in the midst of the week," or three and a half years after His baptism and three and a half years before the end of the seventy weeks, when the gospel would go to the Gentiles. That "cut off" refers to His death is evident from Isaiah 53:8: "He was cut off out of the land of the living: for the transgression of My people was He stricken." "After sixty-two weeks Christ shall be slain," is the rendering of Daniel 9:26 in the Jerome and Douay Bibles.

Jesus was baptized in the autumn and crucified in the spring, three and a half years later. For another similar period the gospel was proclaimed under the power of the Holy Spirit to "the lost sheep of the house of Israel," giving them the last great opportunity before their final rejection when the gospel began to be preached to all the world. When the Jews judged themselves "unworthy of everlasting life" by rejecting the message of salvation, the apostles said, "Lo, we turn to the Gentiles."

Thus Christ in person and through His apostles confirmed "the covenant with many for one week," and "in the

midst of the week" He caused "the sacrifice and the oblation to cease," or come to an end. With His death the typical sacrificial system met its antitype in the true "Lamb of God," who came to take "away the sin of the world." As Jesus was dying on the cross He cried out, "It is finished," and an unseen hand rent the curtain between the holy and the most holy apartments in the temple, showing that the typical system was at an end.

With the end of the seventy weeks the times of the Jews ended, and the "times of the Gentiles" began. The former period ended with the advent of the Messiah and the outpouring of the Holy Spirit in the former rain, and the latter period will end with the outpouring of the Holy Spirit in the latter rain, the close of probation, and the second advent of Christ.

### CLEARING THE HEAVENLY RECORDS

But we must not forget that Daniel's prayer was for light on the entire period of 2300 prophetic days, or literal years, that would reach down to "the time of the end" and would end at "the time appointed." The angel said, "Unto two thousand and three hundred days; then shall the sanctuary be cleansed." The Scriptures bring to view two sanctuaries —one earthly and the other heavenly, the first being typical of the second. At the time of the vision the earthly sanctuary was in ruins and its services temporarily discontinued. The restoration of the sanctuary and its services was the burden of Daniel's prayer. That the sanctuary, already in ruins, would be made desolate by the abomination of desolation puzzled the prophet. The 2300 years was to reach to the cleansing of the sanctuary.

The Mosaic tabernacle was made according to divine specifications, after a "pattern," or "fashion," revealed to him during his forty days in Mount Sinai. Solomon's temple was also planned in every detail by the Divine Architect. (See 1 Chronicles 28:11-19.) All the typical services were also divinely prescribed and were to be performed by a typical priesthood. This sanctuary and its priests and services were all typical of the heavenly. (See Hebrews 8:1-6; 9.) Since the first was typical and a "shadow" of the second, the earthly must come to an end before the heavenly could begin. The cross was the meeting place of the two priestly ministrations. In "the midst" of the seventieth week of the prophetic period the earthly had fulfilled its mission and was supplanted by the heavenly.

The typical sanctuary service was divided into two parts. The sinner came into the court and there met the priest at the altar of burnt offerings. There the typical sacrifice was slain after he

The sanctuary in the wilderness.

had confessed his sins over the head of the innocent victim. The priest caught a portion of the blood in a vessel and ministered it in behalf of the sinner who could not enter the holy place in person but only in the person of his representative. The services in the court and holy place were inseparable, and together were called the daily ministration because they continued "day by day" throughout the typical year.

The service in the holy of holies was a yearly event and was therefore not a part of the daily service. On the tenth day of the seventh month came "the Day of Atonement," which was also known as the "day of judgment" and "the cleansing of the sanctuary." It was the service that completed the atonement begun at the altar of sacrifice in the court. The atonement, or reconciliation, was not completed with the death of the lamb. It also required the ministry of the priest in the holy

place and of the high priest in the most holy place. Alienated man will not be fully reconciled to God till the ministry of Christ in the heavenly sanctuary is completed and man can once again see God face to face as he did before sin entered the world and brought about the alienation.

The Day of Atonement in the holy of holies was the service that climaxed the yearly typical ministration in which the whole plan of salvation was revealed in types and symbols. The Day of Atonement was the most solemn day of the year and was therefore announced by the blowing of trumpets throughout the land for ten days. This was known as "God's loud call to repentance" and called for a special preparation of the people for the judgment that would try their cases and determine their destiny. Dean Farrar, on the authority of ancient Hebrew authors, says, "So awful was the Day of Atonement that we are told in a Jewish book of ritual that the very angels run to and fro in fear and trembling, saying, 'Lo! the day of judgment has come.' "—*The Early Days of Christianity*, p. 238.

The Mosaic tabernacle and temple of Solomon and their services were typical of the great temple in heaven, where Jesus ministers before the Father as our great High Priest and Mediator. The two apartments of the typical sanctuary, with their services, represented the two phases of the ministration of Christ in bringing alienated man back to "at-one-ment" with God. In Revelation 11:1, 2 we are told that the court of the heavenly sanctuary is in this earth. The service of Christ in behalf of sinners began on this earth, where sin abounds and to which He came from the temple in heaven to qualify as both the victim and the priest. He then ascended to begin the second phase of His ministry in behalf of sinful man.

Each step in the typical service brought the priest nearer to the throne of God and the sinner whom he represented nearer to complete reconciliation. Likewise, each phase of Christ's ministry brings man closer to God and nearer to a completed atonement. The order of the typical services was a divine arrangement, and the same order must obtain in the antitypical. Jesus must begin His ministration in the court with His death, for He cannot minister without blood, because "without shedding of blood [there] is no remission." The second phase of His service began on the day of Pentecost and was inaugurated by the outpouring of the Holy Spirit upon His people. When the second Person of the Godhead began His ministration in the temple above, the Holy Spirit began His enlarged ministry on earth.

The purpose of the time prophecies

of Daniel is to reveal to God's people the time of the death of Christ, the true Paschal Lamb, and the beginning of His intercession in the sanctuary above.

The same great time prophecy foretold the beginning of the judgment ministry of Christ. The 2300 years ended in 1844 A.D., and at that time came the beginning of the antitypical day of atonement, or judgment, the cleansing of the heavenly sanctuary. At that time Christ, the high priest of the heavenly sanctuary, entered upon the last phase of His mediatorial ministration. On the typical Day of Atonement the sanctuary was cleansed of the sins that had in type accumulated there during the year. So the ministry of Christ since 1844 has been that of cleansing the heavenly sanctuary by the blotting out of the sins of God's people from the books of record, and the blotting out of the names of backsliders from the book of life, in preparation for His coming.

An important part of the cleansing of the heavenly sanctuary is the cleansing of the church on earth by the washing away of the sins of God's people. When this work is completed, the saints will constitute "a glorious church, not having spot, or wrinkle, or any such thing"; but they will be "holy and without blemish." While the investigative judgment is in session in heaven, a judgment-hour message will be heralded to all mankind, declaring with the voice of authority that "the hour of His judgment is come," and calling upon the world to worship the Creator. This message will constitute the blowing of the gospel trumpet, or "God's loud call to repentance." It is the last solemn appeal to all men before probation closes. Reader, this very message, meeting the exact specifications of prophecy, is now being heralded to all the world and multiplying thousands are responding to the call. The last call of divine love and mercy is being sounded in trumpet tones, and all who respond will hear the invitation from the Son of man, "Come, ye blessed of My Father, inherit the kingdom prepared for you from the foundation of the world."

# Before the Bar of Judgment

AN interesting story has been told of an old Scottish physician who was noted for his skill and piety. After his death, when his books were examined, several accounts had written across them in red ink, "Forgiven, too poor to pay." His wife, who was of a different disposition, said, "These accounts must be paid." She therefore sued for the money. The judge said, "Is this your husband's handwriting in red?" She replied that it was. "Then," said the judge, "there is not a tribunal in the land that can obtain the money where he has written 'Forgiven.' "

So, likewise, when the time comes for the final settlement in the heavenly court, it will be of inestimable value and eternal importance if we have so believed, loved, and lived as to find favour with the Great Physician, and He can write across our account the word "Forgiven." To be forgiven all sin and to be able to stand before the judgment bar of God free from condemnation, is the high and sacred privilege of every one who puts his trust in Jehovah.

Through the merits of Jesus there is ample provision made to cover every known and confessed sin. "I, even I, am He that blotteth out thy transgressions for Mine own sake, and will not remember thy sins. Put Me in remembrance: let us plead together; declare thou, that thou mayest be justified." Isaiah 43:25, 26. Oh, how wonderful are the words, works, and ways of God! As we study into the unsearchable riches of truth unfolded in the Holy Scriptures, we can but exclaim in the language of the psalmist, "What is man, that Thou art mindful of him? and the son of man, that Thou visitest him?" Psalm 8:4. Man is the crowning work of the Creator. "God created man in His own image." He made him to "have dominion . . . over every living thing." But how tragic is the fact that man fell from his high estate. He

yielded to temptation, was led into sin and bondage, and lost his dominion. "Of whom a man is overcome, of the same is he brought in bondage." 2 Peter 2:19.

It is a tremendous and solemn thought that the characters and lives of men are now passing in review before the Judge of all the earth. Momentous are the interests involved, and eternal are the decisions made. That men may be prepared to stand the test, the gospel message calls upon them in every nation to "fear God, and give glory to Him; for the hour of His judgment is come." The gospel invitation is to "worship Him that made heaven, and earth, and the sea, and the fountains of waters." Revelation 14:7.

We should ever keep in mind that "the judgment of God is according to truth." Romans 2:2. All are "judged out of those things which were written in the books, according to their works." Revelation 20:12. Solemn indeed are the scenes connected with the high court of heaven; the important decisions made are not left to the choice and the capricious ways of men. "For we must all appear before the judgment seat of Christ; that everyone may receive the things done in his body, according to that he hath done, whether it be good or bad." 2 Corinthians 5:10.

Golden opportunities are open to those who desire to be the children of God. The everlasting gospel, included in the judgment-hour message now being proclaimed, is gathering out of all nations such as lay hold of the power of God for salvation. This gospel message is designed for the testing and purification of the church, that men may be prepared to stand unafraid in the judgment. Those who trust God may rejoice in the blessed truth that Christ's mission to earth was not for judgment, but for salvation. "God sent not His Son into the world to condemn the world; but that the world through Him might be saved." John 3:17. And the Great Teacher declared: "He that heareth My word, and believeth on Him that sent Me, hath everlasting life, and shall not come into condemnation, but is passed from death unto life." John 5:24.

The invitation and assurance is, "Look unto Me, and be ye saved, all the ends of the earth: for I am God, and there is none else." "In returning and rest shall ye be saved; in quietness and in confidence shall be your strength." Isaiah 45:22; 30:15. "Behold, I have set before thee an open door, and no man can shut it." Revelation 3:8. The blessed Christ has opened the way so that the lost and undone, the sinful and despised, the poor and the needy, may find access to the throne of grace and obtain mercy and deliverance from the darkening power of sin; and

"For God shall bring every work into judgment, with every secret thing, whether it be good, or whether it be evil."—Solomon.

through His merits and righteousness they may in the judgment hour stand with the great Sin Bearer in the light streaming from Calvary.

No man or angel can impeach the souls who cling to Christ. Through living faith He connects them to Himself. Through the "exceeding great and precious promises," they become "partakers of the divine nature," and escape "the corruption that is in the world." 2 Peter 1:4. It is the Lord Jesus who alone is able to save and present them "holy and unblamable and unreprovable in His sight." Colossians 1:22. It is the high and sacred privilege of every believer to "fear God, and give glory to Him," and to exclaim with heart-felt assurance: "If God is on our side, who is there to appear against us? He who did not withhold even His own Son, but gave Him up for all of us, will He not also with Him freely give us all things? Who shall impeach those whom God has chosen? God declares them free from guilt. Who is there to condemn them? Christ Jesus died, or rather, has risen to life again. He is also at the right hand of God, and is interceding for us." Romans 8:31-34, Weymouth.

High and certain are the principles of justice that guide every movement in the court of glory. The Son of God, the great Intercessor, the merciful and faithful High Priest, the One who was tempted in all points and is touched with the feelings of our infirmities, "is He which was ordained of God to be the Judge of quick [living] and dead." Acts 10:42. If the curtain were drawn aside and we were permitted to look into heaven, we would behold the angelic host watching with deep interest the events that are now taking place. The ancient prophet gives to us a thrilling picture of the closing scenes connected with the judgment. He says: "I beheld till thrones were placed, and One that was ancient of days did sit. . . . Thousands of thousands ministered unto Him, and ten thousand times ten thousand stood before Him: the judgment was set, and the books were opened." Daniel 7:9, 10, A. R. V. Before this heavenly tribunal the cases of men are now being examined, and when the work of the investigative judgment closes, the destiny of all will have been decided for life or death.

What must be the astonishment of the heavenly hosts as they participate in the solemn scenes foretold by the prophets, to see so little concern among men whose lifework is now passing in review before God, and will soon be registered for faithfulness or unfaithfulness. They behold fulfilled and fulfilling prophecy, which speaks with inerrant accuracy and in thunder tones, saying: "The coming of the Lord draweth nigh."

"Behold, the Judge standeth before the door." "Prepare to meet thy God." James 5:8, 9; Amos 4:12.

Oh, the awful guilt and eternal loss that will come to those who do not with all their minds and souls, and with all their might and strength co-operate with Heaven in preparing their hearts for the great and final crisis! Men should become more thoughtful of the riches of God's grace, the surety of His Word, and the blessedness and power of the gospel of their salvation. The all-wise plan of the Infinite God to save lost humanity and to prepare those who receive the gift of His love to stand in the judgment, is not to fail. Significant indeed will be the final achievement of divine grace in the believing, surrendered, and obedient soul.

The secret of advancing in spiritual life and in heart preparation for heaven, is to accept Christ as a living, personal Saviour, and His Word as the truth. When His enduring love and enriching Spirit are given their rightful place in the heart, He beautifies the life, regulates the desires, controls the conduct. He expels the demon of selfishness from the soul, and forms the character after the divine pattern. And thus, under the mighty power of God, manifested in the everlasting gospel that is encircling the world, this work of transforming the lives of men and women of all lands is now being accomplished.

Christ clothes His faithful and tried ones with His own righteousness, that He may present them to Himself "a glorious church, not having spot, or wrinkle, or any such thing." Ephesians 5:27. He says, "I will forgive their iniquity, and I will remember their sin no more." Jeremiah 31:34. "He that overcometh, the same shall be clothed in white raiment; and I will not blot out his name out of the book of life." Revelation 3:5. Oh, that men might be charmed by the beauty of revealed truth, admonished by its warnings, animated and strengthened by its great promises, and transformed by its high and holy commands, for concerning all such it is written, "They shall walk with Me in white: for they are worthy." Revelation 3:4.

"The redeemed of the Lord shall return, and come with singing unto Zion; and everlasting joy shall be upon their head: they shall obtain gladness and joy; and sorrow and mourning shall flee away." Isaiah 51:11.

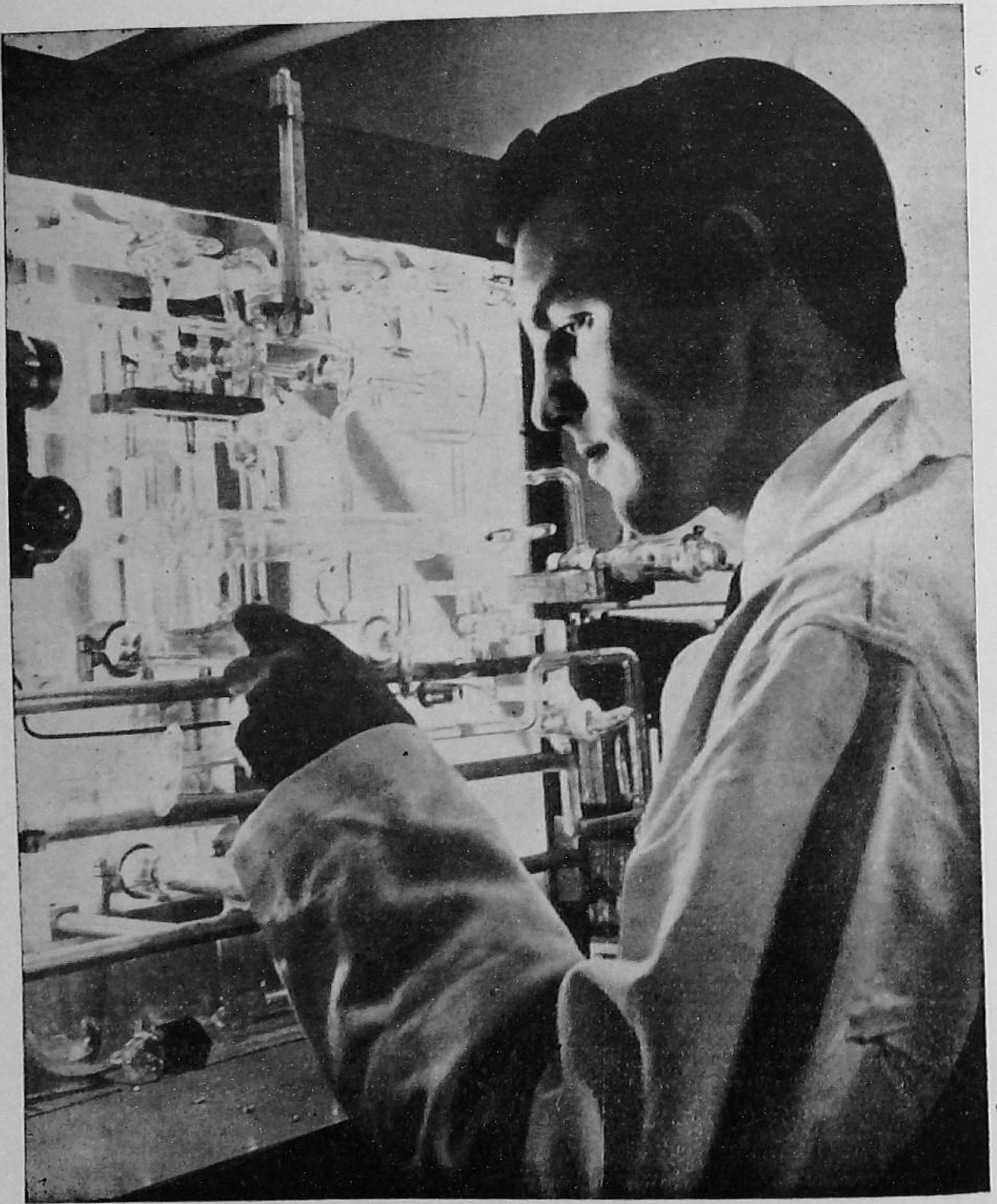


Photo by U. S. I. S.

The chemist in his laboratory seeks to improve the world through scientific advancement.

# *Things to Come*

THE world is facing the greatest event of its history. Statesmen, teachers, ministers, political commentators, and contemporary writers are predicting that civilization is quickly heading for some grand climaxing event. The masses of humanity are wondering what it will be. Fears have been aroused on an unprecedented scale as a result of recent developments in the realm of military instruments of destruction. The increasing spread of insidious diseases, and the tragedies in earthquake, tornado, fire, and flood, have brought the cry from many lips, "What do these things mean? When will these things cease?"

To those who are looking for some ray of hope in the present time of darkness and fear, the promise of Jesus Christ "Let not your heart be troubled: ye believe in God, believe also in Me. In My Father's house are many mansions: if it were not so, I would have told you. I go to prepare a place for you. And if I go and prepare a place for you, *I will come again,* and receive you unto Myself; that where I am, there ye may be also." John 14:1-3—is like sweet music to the ear.

The grand, climaxing event "to which the whole creation moves" is the second coming of Christ. This is the hope of the world. This is the event looked for and foretold throughout the ages of history. It is sure, inevitable! The inspired Word of God states in so many words that "unto them that look for Him shall He appear *the second time* without sin unto salvation." Hebrews 9:28.

The story is told of an old man who lived in a dilapidated shack, with no one as a companion except an aged dog named Shep. One day the man fell down the front steps of his humble quarters and severely injured himself. Shep hastened to the door of the neighbours and barked until their attention was attracted to him, and he

led them to the scene of the accident. The ambulance was called immediately and the suffering man was rushed to the hospital, but not without the faithful and loving Shep.

While it was against the rules for a dog to ride in an ambulance the driver could hardly refuse the determination of the animal to remain close to his master. When they arrived at the hospital the attendants quickly wheeled the patient to the lift, and Shep was right at their heels. Of course, dogs were not supposed to enter the hospital, but again it was hard to restrain the anxious Shep. When the lift door opened, and he started to follow his master into it, the nurses had to hold him back. They could not permit him to go up to the operating theatre.

The old man, who was still conscious, turned toward his dog and said, "You wait here, Shep; I'll be back."

The patient was whisked to the surgery, where it was soon apparent that he had been mortally injured. He died within the day. Shep remained at the lift entrance in the main lobby; and every time the door opened, he arose expectantly, looking for his master. This went on for days. The nurses were not able to persuade him to give up his vigil. They became fond of him, and fed and cared for him. A bed was prepared for him close to the elevator door; and at all hours of the night and day he would rise in anticipation every time the door was opened. This went on for weeks, until one day, when Shep was hurrying across the street in front of the hospital to get back to his waiting place by the lift, he was struck down by an automobile.

The promise made by this master to his dog that he would come back was the promise of a man. Such promises are broken many times. But the assurance of Jesus Christ, *"I will come again,"* is dependable. He always keeps His promises, and that which He has promised He is able to perform. "God is not a man, that He should lie; neither the son of man, that He should repent: hath He said, and shall He not do it? Or hath He spoken, and shall He not make it good?" Numbers 23:19. The promise that Christ will come again is given many, many times in the New Testament.

The Bible teaches that "the day of the Lord so cometh as a thief in the night." 1 Thessalonians 5:2. Some have interpreted this to mean that His coming will be in secret. The true thought is that to the world at large He will come unexpectedly, for many will be unprepared to meet Him. (Luke 17:26-30; 21:34-36.) But a true Christian will not be caught in this condition, for he will be waiting and watching in great expectation. "But ye, brethren, are not in darkness, that that day should overtake

you as a thief." 1 Thessalonians 5:4.

Jesus warned His disciples not to be deceived by the false ideas concerning His second coming. He very emphatically said: "Wherefore if they shall say unto you, Behold, He is in the desert; *go not forth:* behold, He is in the secret chambers; *believe it not.*" Matthew 24:23-26.

There is to be nothing secret about the second advent of our Lord. It will be the most impressive sight ever to meet men's eyes. Jesus prophesied of His own coming as follows: "For as the lightning cometh out of the east, and shineth even unto the west; so shall also the coming of the Son of man be." Matthew 24:27. He further stated concerning His return that men shall "see the Son of man coming in the clouds with great power and glory." Mark 13:26. John declares that "He cometh with clouds; and *every eye shall see Him.*" Revelation 1:7. The Master Himself has said that "then shall *all the tribes of the earth* mourn, and *they shall see the Son of man coming* in the clouds of heaven with power and great glory." Matthew 24:30. Even the wicked inhabitants of the earth who shall witness this awe-inspiring scene will be terrified by it, for the prophet saw in vision that "the kings of the earth, and the great men, and the rich men, and the chief captains, and the mighty men, and every bondman, and every free man, hid themselves in the dens and in the rocks of the mountains; and said to the mountains and rocks, Fall on us, and hide us from the face of Him that sitteth on the throne, and from the wrath of the Lamb: for the great day of His wrath is come; and who shall be able to stand?" Revelation 6:15-17.

In the midst of such confusion, and as the earth is rocked by a mighty earthquake at the presence of the Lord, the saints of God will lift their faces to behold the glory of the coming Redeemer. All about them will be the wicked who have scoffed at Christianity, whose cries of despair, and wails of terror, will pierce the air as they rush madly about seeking places to hide from the presence of the Lord. The children of God will joyously cry: "Lo, this is our God; we have waited for Him, and He will save us: this is the Lord; we have waited for Him, we will be glad and rejoice in His salvation." Isaiah 25:9.

"Behold, He cometh!" The sky will be ablaze with shining glory, while God stages the most stupendous sight that human eyes will have ever gazed upon. The outflashing, awful splendour of the personal, visible coming of Christ will dazzle the eyes. The saved of earth will look up with joy as their hearts thrill with the ecstasy of the moment of deliverance. The angels will sing songs of joy, crying out: "The kingdoms of this world are become the kingdoms of

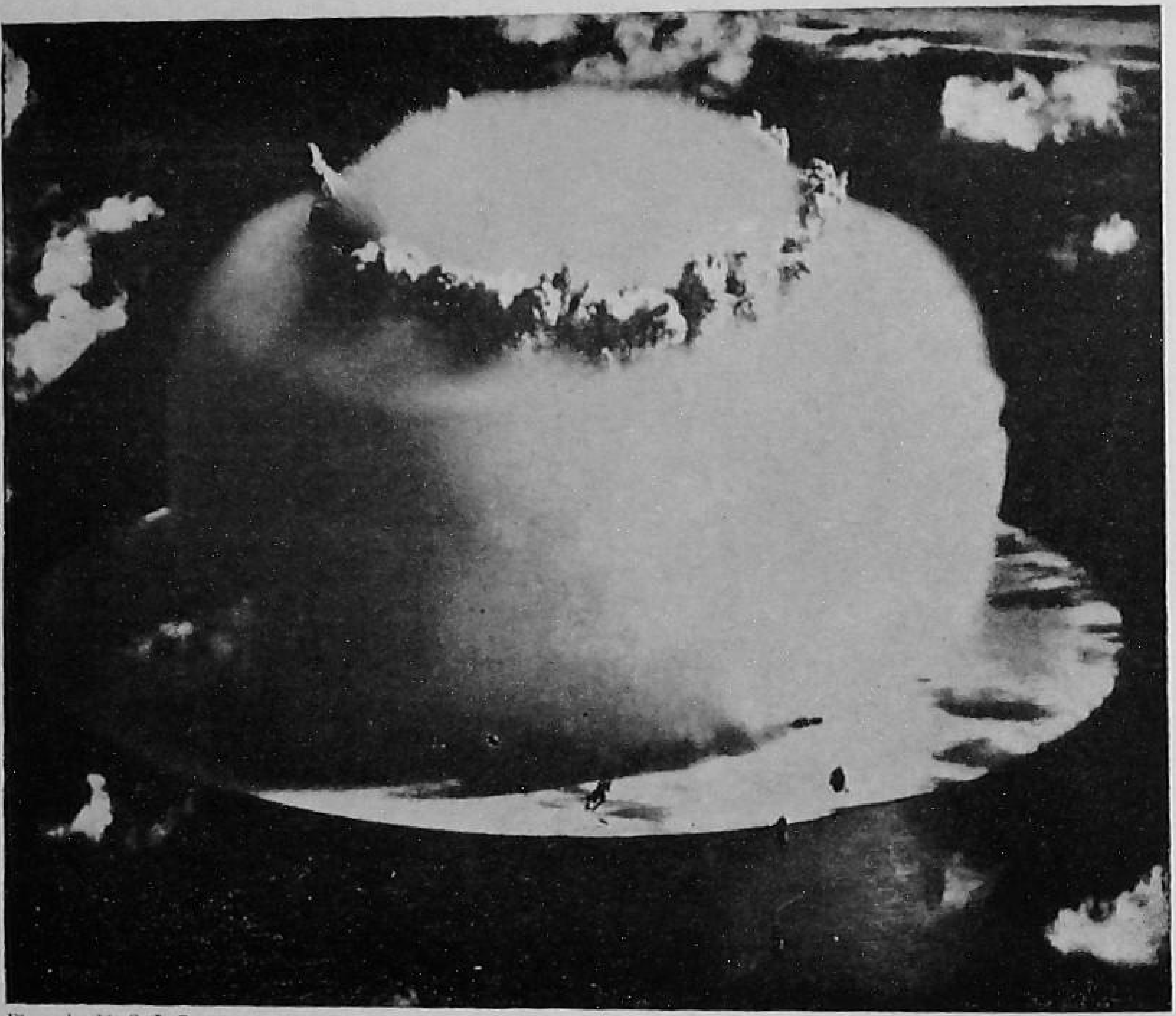


Photo by U. S. I. S.

**The under-water explosion of an atom bomb at Bikini.**

our Lord, and of His Christ." Revelation 11:15.

The wicked will run to escape His presence, crying out in agony for the rocks and the mountains to fall on them and crush out their lives, for "who shall be able to stand?" The nations of earth will behold Him and wail because of Him. Cruel despots will grovel in His presence. The antichrist will be paralyzed and helpless. The false teachers will tremble as they seek to hide in the nooks and corners. The selfish rich will throw their gold and silver in the gutters. The drunkard will weep. The thief will cower.

The pleasure-lover will go about dazed and astonished. The professed Christians who lived only a form of godliness will cry out in desperation, saying: "Lord, Lord, have we not prophesied in Thy name? . . . And in

Thy name done many wonderful works?" The answer will come back from the lips of the perfect Son of God, "I never knew you: depart from Me, ye that work iniquity." Matthew 7: 22, 23.

Ah, but those saints of God! They will stand looking up, trembling with joy. Tears of happiness will stream from their eyes, as they shout: "Lo, this is our God!"

Jesus was taken up in a cloud of glory when He left this earth about 1,900 years ago. He is coming back in the same manner. The celestial messengers assured the apostles: "This same Jesus, which is taken up from you into heaven, shall so come in like manner as ye have seen Him go into heaven." Acts 1:11. He went away bodily, personally, and visibly. The angels said that He would come back in like manner as He was seen to go. "Behold, He cometh with clouds; and every eye shall see Him." Revelation 1:7. When He comes, He will not come alone, nor is He coming in His own glory alone. "For the Son of man shall come in the glory of His Father with His angels." Matthew 16: 27. It is impossible for sinful man to stand in the glorious presence of one shining angel. (Matthew 28:2-4.) But think of the heavens filled with millions of them. Their glory will be far overshadowed by the brilliance of the presence of Jesus Christ the Son of God.

As the celestial retinue shall stop in the sky above this earth, Jesus will call forth the sleeping saints from their graves, and will commission His angels to scatter out over the face of the earth, to gather His loved ones in. "And He shall send His angels with a great sound of a trumpet, and they shall gather together His elect from the four winds, from one end of heaven to the other." Matthew 24:31.

All of God's children will be caught up then to meet Christ in the air and will be taken back to the city of God to inhabit the mansions prepared for them by the beloved Jesus. The Bible pictures this heart-warming scene in the following words: "For the Lord Himself shall descend from heaven with a shout, with the voice of the Archangel, and with the trump of God: and the dead in Christ shall rise first: then we which are alive and remain shall be caught up together with them in the clouds, to meet the Lord in the air: and so shall we ever be with the Lord." 1 Thessalonians 4:16, 17.

The Word of God gives a small preview of the victorious ones as they shall surround the throne of God in heaven.

"After this I beheld, and, lo, a great multitude, which no man could number, of all nations, and kindreds, and people, and tongues, stood before the throne, and before the Lamb, clothed with white robes, and palms in their hands."

Revelation 7:9. Their sorrows are now ended. They are reunited with Christian loved ones. There is no more sickness, pain or death. They hunger no more. There is no more feebleness or old age. There are no blind eyes, crippled limbs, mute mouths. All are immortal. All reign as kings and queens with Christ. Their bodies have been changed into the likeness of their Saviour: "We look for the Saviour, the Lord Jesus Christ: who shall change our vile body, that it may be fashioned like unto His glorious body." Philippians 3:20, 21.

To all who love the appearing of the One who died for our sins, there is laid up a crown of righteousness. Before Paul died, he wrote: "Henceforth there is laid up for me a crown of righteousness, which the Lord, the righteous Judge, shall give me at that day: and not to me only, but *unto all them also that love His appearing.*" 2 Timothy 4:8. If we love the appearing of Christ, we will love to sing about it, talk about it, and work for it.

If you fear the return of the Lord because you are not ready, why not surrender your heart to Him now? Remember that "God so loved the world, that He gave His only-begotten Son, that whosoever believeth in Him should not perish, but have everlasting life." John 3:16. If you will repent of every sin, surrender yourself to Christ, and receive Him as your personal Saviour, you may rest assured that "the blood of Jesus Christ His Son cleanseth us from all sin." 1 John 1:7.

The second coming of Christ is sure. The Bible says, "His going forth is certain as the dawn." Hosea 6:3 (Arabic). His coming is as certain as the fact that the sun will rise tomorrow morning. The big question is, Will you be ready to meet Him? His coming is the only *real* hope for this distraught world. There can be no lasting peace or prosperity for all until the Prince of peace returns. In which group will you be when this greatest world event occurs? Will you be with those who shall run from His presence in great fear, or will you be with those who will look up in confidence and joy and say, "Lo, this is our God; . . . we have waited for Him, we will be glad and rejoice in His salvation"? Isaiah 25:9.

To every individual without exception God extends His offer of mercy, for His invitation is, "Whosoever will, let him take the water of life freely." Revelation 22:17.

# *Significant Happenings*

☐ The disciples inquired how people could know when the end was near and Christ would be about to return to the earth. (Matthew 24:3.)

☐ It is impossible for anyone to know the exact date—the day, the month, or the year—of Christ's return. (Matthew 24:36.)

☐ But it is the privilege and duty of every person to know by the signs that Christ has given when His coming is near, even at the door. Those who understand the Bible prophecies will know what is to happen just before Christ comes; and when they see those things taking place in these days, then they know that the great day is approaching. (Matthew 24:32, 33.)

☐ God's people will thus be able to see when the great day of the Lord is approaching. (Hebrews 1:25.) They will not be in darkness and overtaken by His coming, as by a thief in the night. (1 Thessalonians 5:4.)

☐ James 5:3. Prophecy tells us that in the very last days, when the end is near, the rich will pile up great fortunes, and heap up great treasures and wealth. The piling up of great fortunes since 1900 exceeds that of all previous centuries. In 1900 a certain man who has since become a millionaire did not have enough money to buy a turkey for Xmas. Today he has such great wealth that if it were put into five-rupee notes it would take 16,300 men to lift them.

☐ James 5:4, 8. There was to be suffering on the part of the poor in the last days.

☐ Daniel 12:4. In the time of the end knowledge was to be increased. The increase of knowledge during the past 100 years exceeds that of all previous centuries from the beginning of time. Anyone today who is

sixty years old, has during his lifetime seen an advance in knowledge which exceeds all that people of past generations saw from the time history began.

☐ Luke 21:11. Jesus said that there would be fearful calamities in the last days. We see this in the increase of earthquakes, hurricanes, floods, tidal waves, droughts, and heat waves of recent years.

☐ 2 Timothy 3:1-5. Paul prophesied there would be perilous times in the last days, with a craze for pleasure, and a marked decline in true religion. We see all this right now before our very eyes.

☐ Matthew 24:12. Jesus said that in the last days lawlessness would abound; the land would be full of bloody crimes. (Ezekiel 7:2, 23; Matthew 24:37; Genesis 6:5, 11.) We see this in the great crime waves of our day.

☐ Matthew 24:14. The supreme sign that the end is near is seen in the fact that God is now sending a special message to all the world to warn the people to prepare to meet Christ. (Revelation 14:6-14; Joel 2:1.)

☐ 2 Peter 3:3-5. There will be many who will scoff at the idea of the end being near.

☐ Isaiah 2:2-4. The nations in the last days will talk about putting an end to war. We see this fulfilled in the great peace movement of our day.

☐ Joel 3:9, 10, 14. When the day of the Lord is near, the nations will prepare for war as never before, and this we see before our very eyes today.

☐ Mark 13:29. When we see all these things, we should know that the coming of Christ is at the door, and we should now be prepared to meet Him.

PART V

# THE PURSUIT OF HAPPINESS


| | |
|---|---|
| The Truth that Makes Men Free | John Alexander MacKay, D.D., L.L.D. |
| The Emblem of Loyalty | A. S. Maxwell |
| One Hundred Facts You Should Know | Adapted |
| False Hope | Selected |
| Life Beyond | Robert L. Odom |
| God's Land of Promise | R. L. Cottrell |

Photo by U. S. I. S.

The Statue of Liberty

# The Truth That Makes Men Free

ONE of the many things in modern life which we had accustomed ourselves to take for granted and to regard as an imperishable part of our heritage from the past, was liberty. Until quite recently, no one believed that the great liberties, fruits of years of struggle—liberty of thought and of speech, liberty to dispose of one's goods, liberty of public assembly and of religious worship—would ever be challenged again. How rudely we have been aroused from our romantic slumbers! Not only have those liberties been challenged in places where they had been taken for granted; they have been destroyed in places where they had been regarded as sacred and inviolable.

## The Eclipse of Freedom

The chief symbol of the eclipse of liberty in our time is the coming of the new state. Freedom's death knell has been sounded over wide areas of the world by the founders of the great totalitarian systems. "Liberty is precious," said Lenin, "so precious that we must ration it." "Liberty is dead," said Mussolini, "and its corpse is already putrescent." The rationing and death of freedom in many lands is the most disturbing feature in the human situation today.

The unexpected eclipse of freedom in some parts of the world, and the probability that its torch will grow increasingly dim in others, forces men everywhere to rethink what freedom means, and how the freedom they enjoy has been achieved. The new situation has developed so suddenly, that we have all been taken unawares. Not long ago a group of philosophers and jurists were called together to give their counsel upon problems arising from the loss of religious liberty in certain countries. In the course of discussion, the observation was made that no fundamental treatise had been written on the subject of religious toleration since the days of John Locke in the seventeenth century.

The need had not arisen for such a treatise. But now the problem of freedom has become the most crucial in the life of the world and the most worthy of earnest thought.

### The Bible Stands for Liberty

One of the striking and significant things in the present-day crisis of liberty is that the last stand for freedom in many a land is being inspired by the Bible. When we survey the world of today, we discover that the groups which, despite persecution and the loss of all outward liberty, are offering the most resolute resistance to the new despotisms, are groups which have found their inspiration in the Christian Scriptures. The Book whose pages relate the most significant crisis in human history; whose influence has revolutionized the life of individuals and of society, never comes to its own so much as in times of crisis and revolution.

Take, for example, the situation in Germany. When Dr. Albert Einstein went to America some years ago, an exile from his native country, he made a very significant statement. He said that, when National Socialism came into power in Germany and began to challenge the traditional liberties of the country, he felt certain that the standard of revolt would be unfurled within the German universities and learned societies. What was his surprise to discover that the challenge to freedom was met with resolution only within the Christian church—a community which he had until that time despised!

The Book which today inspires men who stand in the last redoubt of freedom, has been itself the great pioneer of human liberty. Let us look at the progress of freedom in the outward lot of mankind through the influence of the Bible and of biblical religion.

### The Great Liberator of the Mind

The Bible has made a supreme contribution to popular education. More than any other book or force in history, it has been the great liberator of the human mind. It has burst open the prison doors of superstition. Its translation into each new language has been a classic event in the educational advance of the people speaking that language. The reign of illiteracy begins to come to an end in the life of a people from the time the Bible comes among them, and they are free to listen to its message. . . .

Equally striking is the link between the Bible and the civil liberties. It was William Wilberforce—a lover of the Bible, a man who owed his soul to its liberating truth—who led the great crusade to emancipate Negro slaves in the British Empire. It was a contemporary of Wilberforce, Anthony Ashley

Cooper, Lord Shaftesbury, a man of one Book from boyhood to old age, who championed the cause of factory workers in industrial England, and succeeded in securing the passage of one act after another through the British Parliament to alleviate their lot.

The same relationship exists between the Book and the rights and privileges of citizens in a democratic order. Those Christian churches that were zealous to order the lives of their members in accordance with the principles of Holy Scripture, became nurseries of liberty and training places for civil and political responsibility. Their insistence, to the point of sacrifice, upon their rights according to the Word of God obliged the state to which they belonged to cultivate tolerance and to make provision for the co-existence of varying viewpoints within the national family. Church membership schooled men and women in the discharge of responsible duties. It prepared them to claim and to exercise the rights of citizens in the affairs of state; it made them sensitive to community needs which it was their responsibility to meet.

### THE PRINCIPAL TEXTBOOK OF FREEDOM

The extent to which the Christian church has been the great school of democracy, with the Bible as the principal textbook of democratic freedom and responsibility, is best appreciated when we compare the history of democracy in the United States with that of democratic institutions in the sister republics of Latin America. A distinguished Argentine thinker was discussing the long series of revolutions that have marred the political history of Latin-American countries, and the reasons why it has been difficult for democratic principles to become fully indigenous in the Hispanic world. He made this luminous statement:

"Only those countries have ever made a success of democracy," he said in substance, "in which the people, or at least a strong minority of the people, have cultivated personal religion and taken up an attitude of personal loyalty to God. The experience of God and the appeal to God gives a people a sense of dignity; it instills them with a deep sense of responsible action. In our countries," he went on, "religious inwardness has been lacking throughout our history, with the result that we have not found it possible to be consistently loyal to the democratic system."

The case is not different when we come to the high realms of cultural and religious freedom. Freedom of thought and freedom of conscience—the twin liberties that are most precious to civi-

lized man—without which no civilization is worthy of the name, are children of the Bible. While it is true that the demand for intellectual freedom originated in Greece rather than in Judea, and that the right to think freely has been as much insisted upon by secular as by Christian thinkers, this should be remembered, that Greece and her thinkers would have lain buried in their graves and remained lost to history but for a renaissance of the Bible and of interest in the Bible. For "Greece," as has been beautifully said, "arose from the grave, with the New Testament in her hand." All this is true despite the fact that Christians have sometimes interpreted the Bible and its teaching in such a way as to show intolerance and bigotry with respect to the ideas and religious practices of other people. Alas, many a scandal has been perpetrated down the ages in the name of the Bible and in professed loyalty to biblical truth. But Christianity and the Bible have not been to blame for the misguided zeal of many of their devotees.

Not only so; it was the Bible insistence that truth is one because God is one, which made the scientific spirit and the freedom of scientific research possible. Evangelical Christians have been among the most unswerving champions of freedom of research, even when research was carried out on the Bible itself, and views of the Bible were expressed that conflicted with those traditionally held. Cultural freedom, moreover, will follow the fate of the Bible. Let the Bible be repudiated as the supreme guidebook of mankind, and intellectual freedom will die. The proof of this is the death of intellectual freedom in Russia and in Germany, where Christianity and its records have been rejected.

### Bible Promotes Freedom of Conscience

As for freedom of conscience, that is to say, religious freedom, nowhere has it been more effective than in countries where the principles of biblical Christianity have swayed the popular mind. The United States, which more than any other country was founded by men mastered by the Bible, has been the most hospitable country in history to divergent religious ideas and sects. The battle of religious liberty was won in America by men whose faith was grounded in the Scriptures. Who can forget that that great Christian, Robert Williams, was "the first person in modern Christendom to assert in its plenitude the doctrine of liberty of conscience, the equality of opinions before the law"? (Bancroft.) How can civilization in America ever forget its debt to the Baptists, "the first body of Christians to formulate and enforce a

doctrine of religious liberty"? The Presbyterians, whose historical love of freedom made them the first in the political realm to advocate American independence, have enshrined in their standards the foundation principle of religious liberty that "God alone is Lord of the conscience." Because this principle has been recognized, Protestant and Roman Catholic, Jew and Buddhist, are able to live in that free land in peace and liberty.

### SPIRITUAL FREEDOM SUPREME

It is natural that this unbreakable link should have been forged across the centuries between the Bible and human freedom—and that the "book of a thousand tongues" should have taken part in a thousand battles for liberty. Increasing insight down the centuries into the Bible view of man and his destiny led to the removal of obstacles to the development of free personality. For, in the Bible, man is set forth as a being who has infinite value for God, his Creator and Redeemer. Inasmuch as God has called him to the high destiny of sonship, certain important consequences follow. No human authority has a right to degrade or enslave man or to deprive him of his right to self-development. He should be free to assume responsibilities for which he is fitted. None should demand of him a love or loyalty which is due to God alone. It is the duty of society and the state to free men from such conditions as make it difficult for them to fulfil their destiny as children of God.

Freedom, however, means a great deal more than freedom to obtain an education, freedom from inhuman treatment, freedom to assume responsibility, according to one's capacity, freedom from the necessity of believing or worshipping in opposition to one's conscience. These liberties are all precious. They have been the birthright of successive generations of people in the Anglo-Saxon world. The Bible has played a major part in securing them. But one might enjoy all these liberties to the full without being free. A man might be free from all external authority and yet be a slave—a slave to his own self-will. True freedom is positive in character. It is much more than freedom from evil conditions that prevent the full development of personality; it is the freedom that is born when personality in its wholeness dedicates itself to the pursuit of the good. It is freedom in the truth; freedom born of a full commitment to God, in whose love and service man becomes free and truly man.

Photo by L. J. Larson

The flags of Southern Asia.

# The Emblem of Loyalty

A FLAG carries with it a world of meaning. It is an embodiment of national honour, a memorial of all that has been accomplished in its name. As it flutters in the breeze it recalls the service and sacrifice of many generations that have built the fortunes of the country it represents. It is far more than a piece of coloured silk or cotton; it is a symbol of a people's strongest affections, a token of their devotion to all they hold most dear.

When King Edward of England visited Italy on one occasion it was suddenly noticed that the carpet laid across the pavement was too short to reach his carriage. An officer, seizing an Italian flag, spread it chivalrously upon the uncovered ground. The King, however, to the delight of the populace, stepped aside, declining with much grace to accept so high an honour. He recognized in the flag the soul of a great people.

Of late years the growing spirit of nationalism has tended to emphasize the importance of such tokens of allegiance. In most countries, and especially in those that have but recently acquired their nationhood, much waving of flags accompanies all demonstrations of patriotism.

All goods for export or import must be stamped with the country of their origin. Thus even in material things a national mark is becoming a matter of increasing importance.

### Ezekiel's Vision

This modern development has a biblical counterpart. The Lord commanded Israel to mark their houses with the blood of unblemished lambs lest the destroying angel visit their first-born with death. That national mark was of priceless value. As a sign of their devotion to God it meant their salvation.

Ezekiel tells how, in vision, he was shown a similar deliverance of a God-marked people. First he was taken to see the awful wickedness that was going on among those who professed to be the people of God. So bad had conditions become that word went forth that everyone should be slain, save only those who had had no part in the abominations which were being practised. Six men appeared to perform the work of destruction and among them the prophet saw a man "clothed with linen, with a writer's inkhorn by his side . . . and the Lord said unto him, Go through the midst of the city . . . and set a mark upon the foreheads of the men that sigh and that cry for all the abominations that be done in the midst thereof."

The man clothed in linen went on his way, impressing the mark on the true people of God. Then, says Ezekiel, "To the others he said in mine hearing, Go ye after him through the city, and smite; let not your eyes spare, neither have ye pity: slay utterly old and young, both maids and little children, and women; but come not near any man upon whom is the mark." Ezekiel 9:1-6.

Of what that saving mark consisted, there is no indication. It was something, however, which made a definite line of cleavage between the children of God and those who had sold themselves to sin. Whether it was a literal mark upon the forehead or a spiritual impress upon the mind, we are not told; but it was certainly a sufficient distinction for the angels to recognize when the hour of God's judgment arrived.

### MARKING GOD'S PEOPLE

These records are of special interest as indicating that the possession of an emblem of loyalty is not necessarily confined to the nations of the world. They show us how God's people were delivered by reason of the fact that they possessed some mark or characteristic that made them easily recognizable as belonging to Him.

This thought is borne out by a remarkable passage in the seventh chapter of Revelation, where the apostle John writes about some of the events to take place upon the earth immediately before the last great day. He draws a picture strikingly similar to that seen long before by Ezekiel, but involving the whole world. First he sees four angels stand on the four corners of the earth, holding the four winds, as though waiting for the order to release them and plunge the world into final and irreparable ruin.

Then there appears not "a man with a writer's inkhorn," but an angel ascending from the east "having the seal of the living God" and crying to the four angels holding the four winds:

"Hurt not the earth, neither the sea, nor the trees, till we have sealed the servants of our God in their foreheads." Revelation 7:1-3.

Evidently, then, the true people of God in the last days are also to bear some mark or seal that shall demonstrate to all that they are indeed His servants, and ensure their deliverance when the last judgments fall. If this be so, then we are faced with the solemn fact that now, while the winds of strife are still being held, the marking of God's people is proceeding: that now, in this mighty hour, His messengers are seeking out in all the earth those whose hearts are towards Him, bringing them into full harmony with His will and by His Holy Spirit sealing them in a way that will not only separate them clearly from the world but link them inseparably with heaven.

### THE SEAL OF GOD

What is meant by the seal of God. Those who desire to belong to His people, to witness for righteousness and champion His cause in the earth, will want to carry His ensign and wear His badge.

God's people of the last days will always be recognizable by the fact that they "keep the commandments of God, and the faith of Jesus." In other words, they have whole-hearted faith in Jesus Christ as their Saviour and, in consequence, keep all the commandments of God. This being so, their distinguishing characteristic which, more than anything else, sets them forth as God's champions, is likely to be found connected with one or other of these indispensable qualifications.

The apostle John himself gives us a most helpful suggestion. Describing those who are sealed when at last they appear before the Lamb of God, he says: "I looked, and, lo, a Lamb stood on the mount Sion, and with him an hundred and forty-four thousand, having His Father's name written in their foreheads." Revelation 14: 1.

Evidently the "seal" and "His Father's name" are synonymous, for both are found "in their foreheads." But in what practical way could God's people demonstrate that "Jehovah" is written there? Truly they must have His name constantly in their minds and champion it against all the forces of evil; but surely such solemn words mean even more than that.

There is some connection between the general description of the people as keeping "the commandments of God, and the faith of Jesus" and the statement describing their special characteristic "His Father's name."

For a moment think through the commandments. The first.... The second.... The third.... Note the fourth...,

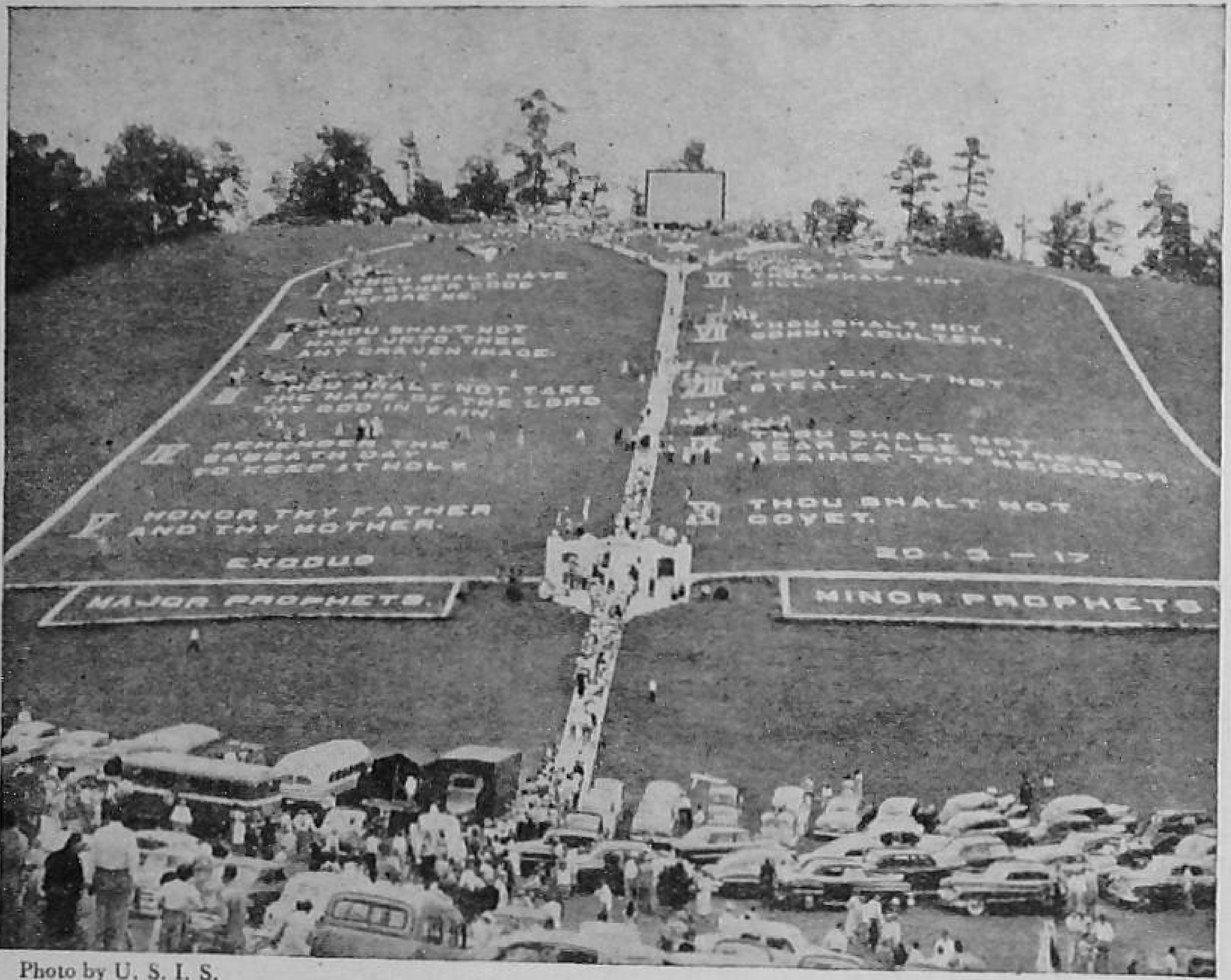



Photo by U. S. I. S.

The world's largest reproduction of the Ten Commandments at Murphy, North Carolina (U. S. A.). The commandments are spelled out in white stones in letters four feet wide and six feet high. The Roman numerals are made of concrete seven feet wide by fourteen feet high.

What does it say? "Remember the Sabbath day, to keep it holy. Six days shalt thou labour, and do all thy work: but the seventh day is the Sabbath of the Lord thy God: in it thou shalt not do any work, thou, nor thy son, nor thy daughter, thy manservant, nor thy maidservant, nor thy cattle, nor the stranger that is within thy gates: for in six days the Lord made heaven and earth, the sea, and all that in them is, and rested the seventh day; wherefore the Lord blessed the Sabbath day, and hallowed it." Exodus 20:8-11.

### Importance of the Sabbath

Here is a commandment definitely affecting the name and the honour of God. It provides for the observance of a weekly Sabbath as an everlasting memorial of His creative power. Those who keep it proclaim to the world by their action that they believe in the

living God who made heaven and earth. Their presence on earth is tangible evidence of God's existence in heaven. They say, in effect, every week that passes, "We are Jehovah's champions, we honour His name, we trust in His power, we will, by His grace, keep His commandments."

Those who observe the seventh-day Sabbath under deep conviction that it is the will of God, have thus, in a special and very practical way, the Father's name in their foreheads. For they cannot attempt to keep this one commandment without bringing their lives, by His help, into harmony with the other nine. There is something very public about the fourth. It is the one commandment that cannot be kept in secret. Those who stop their work at sunset on the sixth day of the week, and rest until sunset on the seventh day, become conspicuous, especially in a community that cares little for the things of God. And this very publicity demands consistency. True observance of the Sabbath and dishonesty in business, for instance, are incongruous. The best Sabbath-keepers must always be the best citizens.

People of the world may taunt Sabbath-keepers with being cranks and kill-joys, but they are usually willing to admit the godliness of their lives. They cannot help but see the signs of their heavenly allegiance, although resenting the constant rebuke that it brings against themselves. As a worldly business woman said not long ago, "These strict Sabbath-keepers may be peculiar, but I prefer to do business with them because they always pay their bills!" The seal of God is not stamped in vain.

### A Perpetual Memorial

The suggestion that the distinguishing mark of God's own people is the observance of the Sabbath is by no means new. Moses was commanded by the Lord to give this message to Israel: "Verily My Sabbaths ye shall keep: for it is a sign between Me and you throughout your generations; that ye may know that I am the Lord that doth sanctify you." Exodus 31:13.

Speaking also as God's mouth-piece, the prophet Ezekiel—who described the marking of the remnant in Jerusalem—brought a similar message to the people of his day: "Thus saith the Lord God; In the day when I chose Israel, and lifted up Mine hand unto the seed of the house of Jacob and made Myself known unto them in the land of Egypt. . . . I gave them My statutes, and showed them My judgments, which if a man do, he shall even live in them. Moreover also I gave them My Sabbaths, to be a sign between Me and them, that they might know that I am the Lord that sanctify them." Ezekiel 20:5-12.

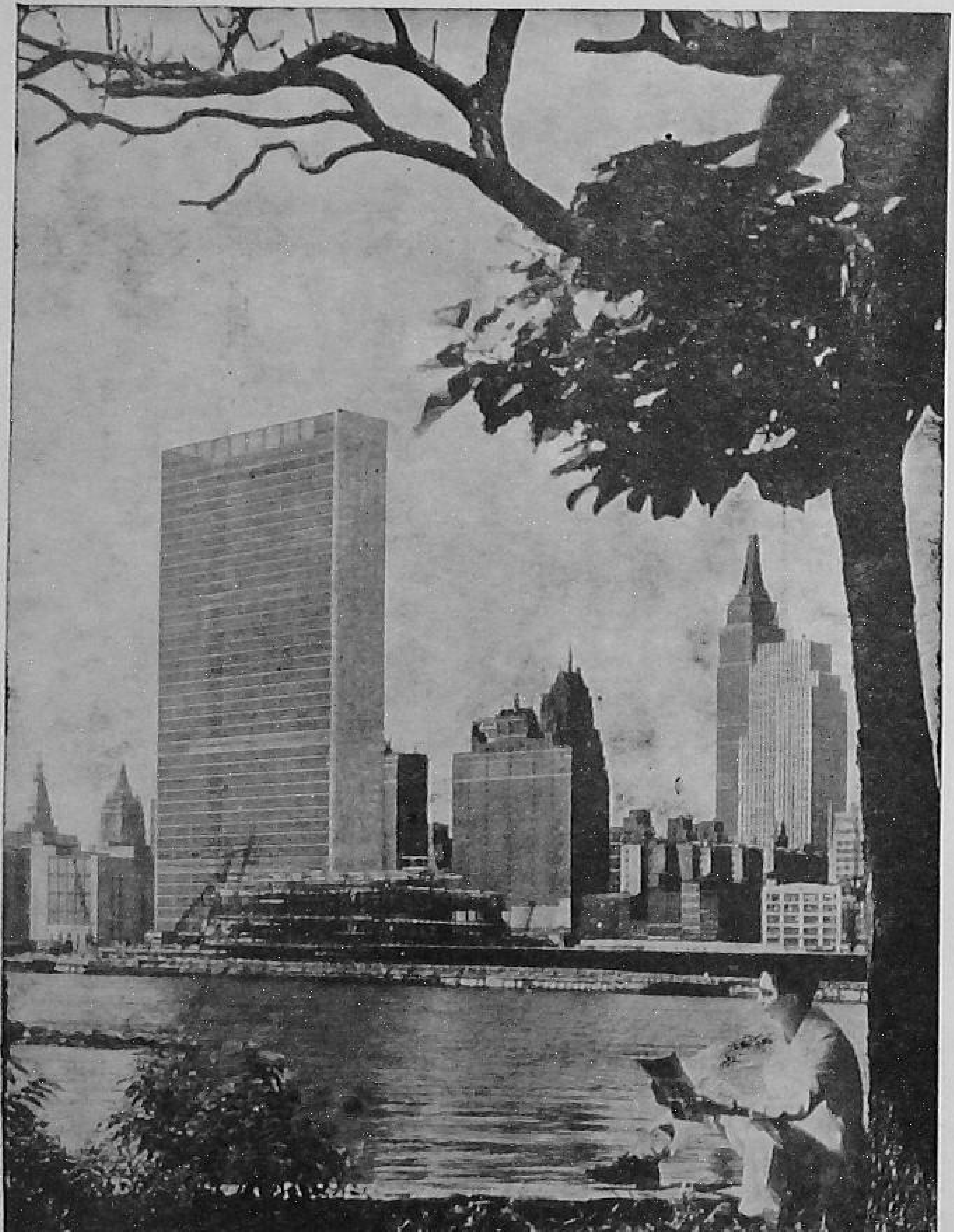


Photo by U. S. I. S.

The United Nations Building, New York City.

# *One Hundred Facts You Should Know*

WHY keep the Sabbath day? What is the object of the Sabbath? Who made it? When was it made, and for whom? Which day is the true Sabbath? Many keep the first day of the week, or Sunday. What Bible authority have they for this? Some keep the seventh day, or Saturday. What Scripture have they for that? Here are the facts about both days, as plainly stated in the Word of God:

### Sixty Bible Facts Concerning the Seventh Day

1. After working the first days of the week in creating this earth, the great God rested on the seventh day. (Genesis 2:1-3.)

2. This stamped that day as God's rest day, or Sabbath day, as Sabbath day means rest day. To illustrate: When a person is born on a certain day, that day thus becomes his birthday. So when God rested upon the seventh day, that day becomes His rest day or Sabbath day.

3. Therefore the seventh day must always be God's Sabbath day. Can you change your birthday from the day on which you were born, to one on which you were not born? No. Neither can you change God's rest day to a day on which He did not rest. Hence the seventh day is still God's Sabbath day.

4. The Creator blessed the seventh day. (Genesis 2:3.)

5. He sanctified the seventh day. (Exodus 20:11.)

6. He made it the Sabbath day in the garden of Eden. (Genesis 2:1-3.)

7. It was made before the fall; hence it is not a type; for types were not introduced till after the fall.

8. Jesus says it was made for man (Mark 2:27); that is, for the race, as the word man is here unlimited; hence, for the Gentiles as well as for the Jews.

9. It is a memorial of creation. (Exodus 20:11; 31:17.) Every time we rest upon the seventh day, as God did at creation, we commemorate that grand event.

10. It was given to Adam, the head of the human race. (Mark 2:27; Genesis 2:1-3.)

11. Hence through him, as our representative, to all nations. (Acts 17:26.)

12. It is not a Jewish institution; for it was made 2,300 years before ever there was a Jew.

13. The Bible never calls it the Jewish Sabbath; but always, "the Sabbath of the Lord thy God." Men should be cautious how they stigmatize God's holy rest day.

14. Evident reference is made to the Sabbath all through the patriarchal age. (Genesis 2:1-3; 8:10, 12; 29:27, 28, etc.)

15. It was a part of God's law before Sinai. (Exodus 16:4, 27-29.)

16. Then God placed it in the heart of His moral law. (Exodus 20:1-17.) Why did He place it there if it was not like the other nine precepts, which all admit to be immutable?

17. The seventh-day Sabbath was commanded by the voice of the living God speaking from heaven. (Deuteronomy 4:12, 13.)

18. Then He wrote the commandment with His own finger. (Exodus 31:18.)

19. He engraved it in the enduring stone, indicating its imperishable nature. (Deuteronomy 5:22.)

20. It was sacredly preserved in the ark in the holy of holies. (Deuteronomy 10.1-5.)

21. God forbade work upon the Sabbath, even in the most hurrying times. (Exodus 34:21.)

22. God destroyed the Israelites in the wilderness because they profaned the Sabbath. (Ezekiel 20:12, 13.)

23. It is the sign of the true God, by which we are to know Him from false gods. (Ezekiel 20:20.)

24. God promised that Jerusalem should stand forever if the Jews would keep the Sabbath. (Jeremiah 17:24, 25.)

25. He sent them into Babylonish captivity for breaking it. (Nehemiah 13:18.)

26. He destroyed Jerusalem for its violation. (Jeremiah 17:27.)

27. God has pronounced a special blessing on all the Gentiles who will keep it. (Isaiah 56:6, 7.)

28. This is in that prophecy which refers wholly to the Christian dispensation. (See Isaiah 56.)

29. God has promised to bless any

man who will keep the Sabbath. (Isaiah 56:2.)

30. The Lord requires us to call it "honourable." (Isaiah 58:13.) Beware, ye who take delight in calling it the "old Jewish Sabbath," "a yoke of bondage," etc.

31. After the holy Sabbath has been trodden down "many generations," it is to be restored in the last days. (Isaiah 58:12, 13.)

32. All the holy prophets kept the seventh day.

33. When the Son of God came, He kept the seventh day all His life. (Luke 4:16; John 15:10.) Thus He followed His Father's example at creation. Shall we not be safe in following the example of both the Father and the Son?

34. The seventh day is the Lord's day. (See Revelation 1:10; Mark 2:28; Isaiah 58:13; Exodus 20:10.)

35. Jesus was Lord of the Sabbath (Mark 2:28); that is, to love and protect it, as the husband is the Lord of the wife, to love and cherish her. (1 Peter 3:6.)

36. He vindicated the Sabbath as a merciful institution designed for man's good. (Mark 2:23-28.)

37. Instead of abolishing the Sabbath He carefully taught how it should be observed. (Matthew 12:1-13.)

38. He taught His disciples that they should do nothing upon the Sabbath day but what was "lawful." (Matthew 12:12.)

39. He instructed His apostles that the Sabbath should be prayerfully regarded forty years after His resurrection. (Matthew 24:20.)

40. The holy women who had been with Jesus all His life carefully kept the seventh day after His death. (Luke 23:56.)

41. Thirty years after Christ's resurrection, the Holy Spirit expressly calls it the "Sabbath day." (Acts 13:14.)

42. Paul, the apostle to the Gentiles, called it "the Sabbath day" in 45 A. D. (Acts 13:27.) Did not Paul know? or shall we believe our modern teachers who affirm that it ceased to be the Sabbath at the resurrection of Christ?

43. Luke, the inspired Christian historian, writing as late as 62 A. D. calls it "the Sabbath day." (Acts 13:44.)

44. The Gentile converts called it the Sabbath. (Acts 13:42.)

45. In the great Christian council, 52 A.D., in the presence of the apostles and thousands of disciples, James calls it the "Sabbath day." (Acts 15:21.)

46. It was customary to hold prayer meetings on that day. (Acts 16:13.)

47. Paul read the Scriptures in public meetings on that day. (Acts 17:2, 3.)

48. It was his custom to preach upon that day. (Acts 17:2.)

49. The book of Acts alone gives a record of his holding eighty-four meetings upon that day. (See Acts 13:14, 44; 16:13; 17:2; 18:4, 11.)

50. There was never any dispute between the Christians and the Jews about the Sabbath day. This is proof that the Christians still observed the same day that the Jews did.

51. In all their accusations against Paul, they never charged him with disregarding the Sabbath day. Why did they not, if he did not keep it?

52. But Paul himself expressly declared that he had kept the law. "Neither against the law of the Jews, neither against the temple, nor yet against Cæsar, have I offended anything at all." Acts 25:8. How could this be true if he had not kept the Sabbath?

53. The Sabbath is mentioned in the New Testament fifty-nine times, and always with respect, bearing the same title it had in the Old Testament, "the Sabbath day."

54. Not a word is said anywhere in the New Testament, about the Sabbath's being abolished, done away, changed, or anything of the kind.

55. God has never given permission to any man to work upon it. Reader, by what authority do you use the seventh day for common labour?

56. No Christian of the New Testament, either before or after the resurrection, ever did ordinary work upon the seventh day. Find one case of that kind, and we will yield the question. Why should modern Christians do differently from Bible Christians?

57. There is no record that God has ever removed His blessings or sanctification from the seventh day.

58. As the Sabbath was kept in the earth before the fall, so it will be observed eternally in the New Earth after the restitution. (Isaiah 66:22, 23.)

59. The seventh-day Sabbath was an important part of the law of God, as it came from His own mouth, and was written by His own finger upon stone at Sinai. (See Exodus 20.) When Jesus began His work, He expressly declared that He had not come to destroy the law, "Think not that I am come to destroy the law or the prophets." Matthew 5:17.

60. Jesus severely condemned the Pharisees as hypocrites for pretending to love God, while at the same time they made void one of the ten commandments by their tradition. (Matthew 15:1-9.) The keeping of Sunday is only a tradition of men.

We have now presented sixty plain Bible facts concerning the seventh day. What will you do with them?

### Forty Bible Facts Concerning the First Day of the Week

1. The very first thing recorded in the Bible is work done on Sunday, the

first day of the week. (Genesis 1:1-5.) This was done by the Creator Himself. If God made the earth on Sunday, can it be wicked for us to work on Sunday?

2. God commands men to work upon the first day of the week. (Exodus 20: 8-11.) Is it wrong to obey God?

3. None of the patriarchs ever kept it.

4. None of the holy prophets ever kept it.

5. By the express command of God, His holy people used the first day of the week as a common working day for four thousand years, at least.

6. God Himself calls it a "working" day. (Ezekiel 46:1.)

7. God did not rest upon it.

8. He never blessed it.

9. Christ did not rest upon it.

10. Jesus was a carpenter (Mark 6: 3), and worked at His trade until He was thirty years old. He kept the Sabbath and worked six days in the week, as all admit. Hence He did many a hard day's work on Sunday.

11. The apostles worked upon it during the same time.

12. The apostles never rested upon it.

13. Christ never blessed it.

14. It has never been blessed by any divine authority.

15. It has never been sanctified.

16. No law was ever given to enforce the keeping of it, hence it is no transgression to work upon it. "For where no law is, there is no transgression." Romans 4:15; 1 John 3:4.

17. The New Testament nowhere forbids work to be done on it.

18. No penalty is provided for its violation.

19. No blessing is promised for its observance.

20. No regulation is given as to how it ought to be observed. Would this be so if the Lord wished us to keep it?

21. It is never called the Christian Sabbath.

22. It is never called the Sabbath day at all.

23. It is never called the Lord's day.

24. It is never called even a rest day.

25. No sacred title whatever is applied to it. Then why should we call it holy?

26. It is simply called "the first day of the week."

27. Jesus never mentioned it in any way, never took its name upon His lips, so far as the record shows.

28. The word Sunday never occurs in the Bible at all.

29. Neither God, Christ, nor inspired men ever said one word in favour of Sunday as a holy day.

30. The first day of the week is mentioned only eight times in all the New Testament. (Matthew 23:1; Mark 16:2, 9; Luke 24:1; John 20:1, 19; Acts 20:7; 1 Corinthians 16:2.)

31. Six of these texts refer to the same first day of the week.

32. Paul directed the saints to look over their secular affairs on that day. (1 Corinthians 16:2.)

33. In all the New Testament we have a record of only one religious meeting held upon that day, and even this was a night meeting. (Acts 20:5-12.)

34. There is not an intimation that they ever held a meeting upon it before or after that.

35. It was not their custom to meet on that day.

36. There was no requirement to break bread on that day.

37. We have an account of only one instance in which it was done. (Acts 20:7.)

38. That was done in the night—after midnight. (Verses 7-11.) Jesus celebrated it on Thursday evening (Luke 22), and the disciples sometimes did it every day. (Acts 2:42-46.)

39. The Bible nowhere says that the first day of the week commemorates the resurrection of Christ. This is a tradition of men, which makes void the law of God. (Matthew 15:1-9.) Baptism commemorates the burial and resurrection of Jesus. (Romans 6:3-5.)

40. Finally, the New Testament is totally silent with regard to any change of the Sabbath day or any sacredness for the first day.

Here are one hundred plain Bible facts upon this question, showing conclusively that the seventh day is the Sabbath of the Lord in both the Old and the New Testament.

# *False Hope*

THE word *spiritualism* (or *spiritism)* is not found in the Bible, but there is accord in the definition that spiritualism is the belief that man has natural immortality and that when a man dies his spirit leaves his fleshly body and can and does return to communicate with the living in different ways through various "mediums."

These manifestations are offered as "proof" that man never really dies. Since to the Christian the "Bible and the Bible only" is the final word of authority, let us see how spiritistic displays are regarded by God.

### The Testimony of Christ

First of all what did the Saviour say? "And the seventy returned again with joy, saying, Lord, even the devils are subject unto us through Thy name. And He said unto them, I beheld Satan as lightning fall from heaven." Luke 10: 17, 18.

Here Christ reveals the close relationship between Satan and demons. He said in effect, "Since I cast Satan with his followers out of heaven, I have the authority to give you power over Satan's angels, or spirits."

That this is true is clear from Revelation 12:7-9: "And there was war in heaven: Michael [Christ, Jude 9] and His angels fought against the dragon; and the dragon fought and his angels. . . . And the great dragon was cast out, that old serpent, called the Devil, and Satan, which deceiveth the whole world; he was cast out into the earth, and his angels were cast out with him."

To make the connection clearer, Jesus said to the unbelievers of His day: "Ye are of your father the devil. . . . When he speaketh a lie, he speaketh of his own, for he is a liar, and the father of it." John 8:44.

It is the devil and his angels who inspire the utterances of spiritism, for we read in Jeremiah 27: 9, 10: "Therefore

Ancient astrologers.

hearken not ye to your prophets, nor to your diviners, nor to your . . . enchanters, nor to your sorcerers . . . for they prophecy a lie unto you."

These warnings against what we call spiritualism were equally emphatic in Moses' time: "There shall not be found among you any one that maketh his son or his daughter to pass through the fire, or that useth divination, or an observer of times, or an enchanter, or a witch, or a charmer, or a consulter with familiar spirits, or a wizard, or a necromancer. For all that do these things are

an abomination unto the Lord." Deuteronomy 18:10-12.

This is strong language. What does *abomination* mean? "Detestable, loathsome, hateful, shocking, horrid, revolting, execrable, odious." *(Century Dictionary.)*

Anything that is so repugnant to God as to call forth such epithets must be founded on error and sin. Let us then look a little closer at spiritualism. This belief and practice is not a new truth, as its proponents claim; it is an ancient lie.

### THE SERPENT THE FIRST MEDIUM

| God Said | Satan Said |
| --- | --- |
| "Ye shall not eat of it, . . . lest ye die." Genesis 3:3.<br>"There is no . . . knowledge, nor wisdom, in the grave, whither thou goest." Ecclesiastes 9:10. | "Ye shall NOT surely die: . . . and ye shall be as gods, knowing good and evil." Genesis 3:4. |

In the Garden of Eden, "from the beginning," as Jesus said, Satan was a liar. And "lying lips are *abomination* to the Lord." Proverbs 12:22.

God says to Eve, "If you do what I forbid, you shall die; and in death there is no knowledge."

Satan says through the serpent, "God lies, for He knows you will live forever, growing in wisdom until you become a god."



Spiritualism for nearly 6,000 years has had just one purpose; to make the world believe that God lied in Eden, and to get the world to believe the devil's lie that man can never die.

Satan's statement to Eve is both a lie and contradiction, for Adam and Eve began to die the moment they disobeyed God. (Genesis 2:17, margin.) But Satan and his angels (the demons of the Old and New Testaments) said then and say now through mediums in numberless seances all over the world, "You do *not* 'surely' die: death is not real, for it is then you really begin to live, and you progress till you become like gods."

### WHO IS LYING?

In other words, by disobedience you become divine! "Ye shall not surely die: . . . ye shall be as gods," has become the refrain, the heart, of every spiritualistic seance since the first. He was successful then; he is successful now.

From Genesis to Revelation, the Bible says positively and continuously, that ALL spiritistic manifestations and all offshoots and variations are the lies and delusions of Satan—the devil—and his angels, a continuation and elaboration of the lie told in the Garden of Eden.

All through the Bible these manifestations are denounced, condemned, prohibited; the direst punishment is pronounced against ALL who practise any form of mediumship and ALL who listen. "And I will come near to you to judgment; and I will be a swift witness against the sorcerers." Malachi 3:5.

When one is fortified by the knowledge that "the dead know not anything" (Ecclesiastes 9:5), he knows that the communications do not come from the spirit of a dead friend or relative, but come from Satan or his fallen angels.

But those who do not accept this fact are led to believe "seducing spirits, and doctrines of devils." 1 Timothy 4:1.

Even when the spirit tells the truth, as of course he sometimes does, it is the intention of the spirits the better to deceive.

"If there arise among you a prophet, or a dreamer of dreams, and giveth thee a sign or a wonder, and the sign or the wonder come to pass, whereof he spake unto thee, saying, Let us go after other gods, . . . and let us serve them; thou shalt not hearken unto the words of that prophet, or that dreamer of dreams. . . . Because he hath spoken to turn you away from the Lord your God." Deuteronomy 13:1-3.

### The Bible Test

"Believe not every spirit, but try the spirits whether they are of God: because many false prophets are gone out into the world." 1 John 4:1.

How are we to try, or judge, these spirits? A proper question, and it is answered in the Bible.

"And when they shall say unto you, Seek unto them that have familiar spirits, and unto wizards that peep, and that mutter: should not a people seek unto their God? for the living to the dead? To the law and to the testimony [the Bible]: if they speak not according to this word, it is because there is no light in them." Isaiah 8:19, 20.

Nothing could be more emphatic than this. In Eden, Satan began by calling God a liar, and he is still doing it. In Eden Satan inhabited, or "possessed," another being and spoke through it, making the medium (the serpent in this case) lose its distinctive character. This is the history of spiritualism to the present moment.

That it is dangerous to visit a spirit medium even once is seen in the fate of Saul: "So Saul died for his transgression. . . against the Lord, . . . for asking counsel of one that had a familiar spirit, to enquire of it; and enquired not of the Lord: therefore he slew him." 1 Chronicles 10:13, 14.

### Christianity *vs.* Spiritualism

The final conflict between Christ and Satan, between Christianity and spiritualism, is at hand. So overpowering are

Satan's delusions through spiritualism "that, if it were possible, they shall deceive the very elect." Matthew 24:24.

We are told of "the working of Satan with all power and signs and lying wonders; . . . because they received not the love of the truth, that they might be saved"; so they "believe a lie." (2 Thessalonians 2:8-11 and 2 Timothy 4:1-4.).

These are "demon-spirits performing miracles, who come out to muster the kings of the whole world for battle on the great Day of almighty God." Revelation 16:14, Moffatt.

Evil angels, beginning with brains superior to ours, have had thousands of years in which to improve themselves in the arts of trickery and cunning. They can assume disguises innumerable, impersonate any character, living or dead, duplicate any handwriting, imitate any voice, write or speak any language—they are everywhere on this earth, to which Christ cast them. This confederacy of spirits is highly organized. Says Paul:

"For we have to struggle, not with blood and flesh but with the angelic rulers, the angelic authorities, the potentates of the dark present, the spirit-forces of evil." Ephesians 6:12, 13, Moffatt.

No wonder as we near the end and the powers of spiritualism make "fire come down from heaven on the earth in the sight of men, and deceiveth them that dwell on the earth by the means of those miracles which he had power to do" (Revelation 13:13, 14), that there will be "men swooning with panic and foreboding of what is to befall the universe." Luke 21:26, Moffatt.

Satan will attempt to counterfeit even the second coming of Christ. (Matthew 24:3, 23-27.) "For even Satan fashioneth himself into an angel of light" (2 Corinthians 11:14, R. V.) the better to deceive. This is another way in which "the devil . . . walketh about, seeking whom he may devour." 1 Peter 5:8.

### THE END OF SPIRITUALISM

This is all a modern manifestation of spiritualism, and is foretold in the Scriptures of truth so that we may be prepared.

"And sorcerers, . . . and all liars, shall have their part in the lake which burneth with fire and brimstone: which is the second death." Revelation 21:8. This refers to the day of the Lord and the end of spiritualism. And this event Job foretold (Job 19:25-27) in answer to his own question. Then, and not until, will the dead live again. We may be sure then that *all* "spirits of the dead" are not the spirits of men but of devils.

Photo by L. J. Larson

Is this the end? Or is there a future?

# *Life Beyond*

A WISE old man living in the land of Uz, in ancient Arabia, about thirty-five centuries ago, was an observer of natural phenomena. He noticed that certain plants, in their struggle for existence, were enabled to prevent the complete disappearance of their kind from the face of the earth. This observation led him to think of the question of life and death as it is related to man. Hence he propounded the problem in the following words:

"There is hope of a tree, if it be cut down, that it will sprout again, and that the tender branch thereof will not cease. Though the root thereof wax old in the earth, and the stock thereof die in the ground; yet through the scent of water it will bud, and bring forth boughs like a plant. But man dieth, and wasteth away: yea, man giveth up the ghost, and where is he?" Job 14:7-10.

Cuttings from some plants can be placed in moist earth—as is done in the case of tapioca, rose bushes, and sugar cane—and shoots will spring forth to perpetuate the existence of the species. In the hot and moist lands of the tropics fence posts cut from the trunks of trees, when set in their holes, send forth boughs and leaves, and soon become a fence row of living trees. The same thing happens to telephone poles when special care is not taken to see that they are thoroughly dried and completely dead before they are set into their holes.

But what about men? Every day we see them borne away to the burning ghat or the cemetery where they are consumed or buried beneath the sod. Do they continue to live? This is the question that Job has raised. He had a good reason for thinking about it too, for he lay terribly afflicted with disease, and death was staring him in the face.

Job answered the question by saying:

"As the waters fail from the sea, and the flood decayeth and drieth up: so man lieth down, and riseth not: till the

heavens be no more, they shall not awake, nor be raised out of their sleep." Job 14:11, 12.

What happens to a pool of water when it is dried up? The answer is simple. The pool no longer exists. True it is that the constituent elements of the water evaporate into the air and are diffused by the breezes, and may later fall back to earth in the form of rain. But the pool no longer exists. So it is with man—a living soul—when death strikes him down. Creation is the making of man. Death is the unmaking of man, and its process is the reverse of that of creation. Man was made by the combination of the breath of life from God with the body of dust taken from the ground. In death, man is unmade by the separation of the breath of life from the body of dust. The inspired writer says: "Thou takest away their breath, they die, and return to their dust." Psalm 104:29.

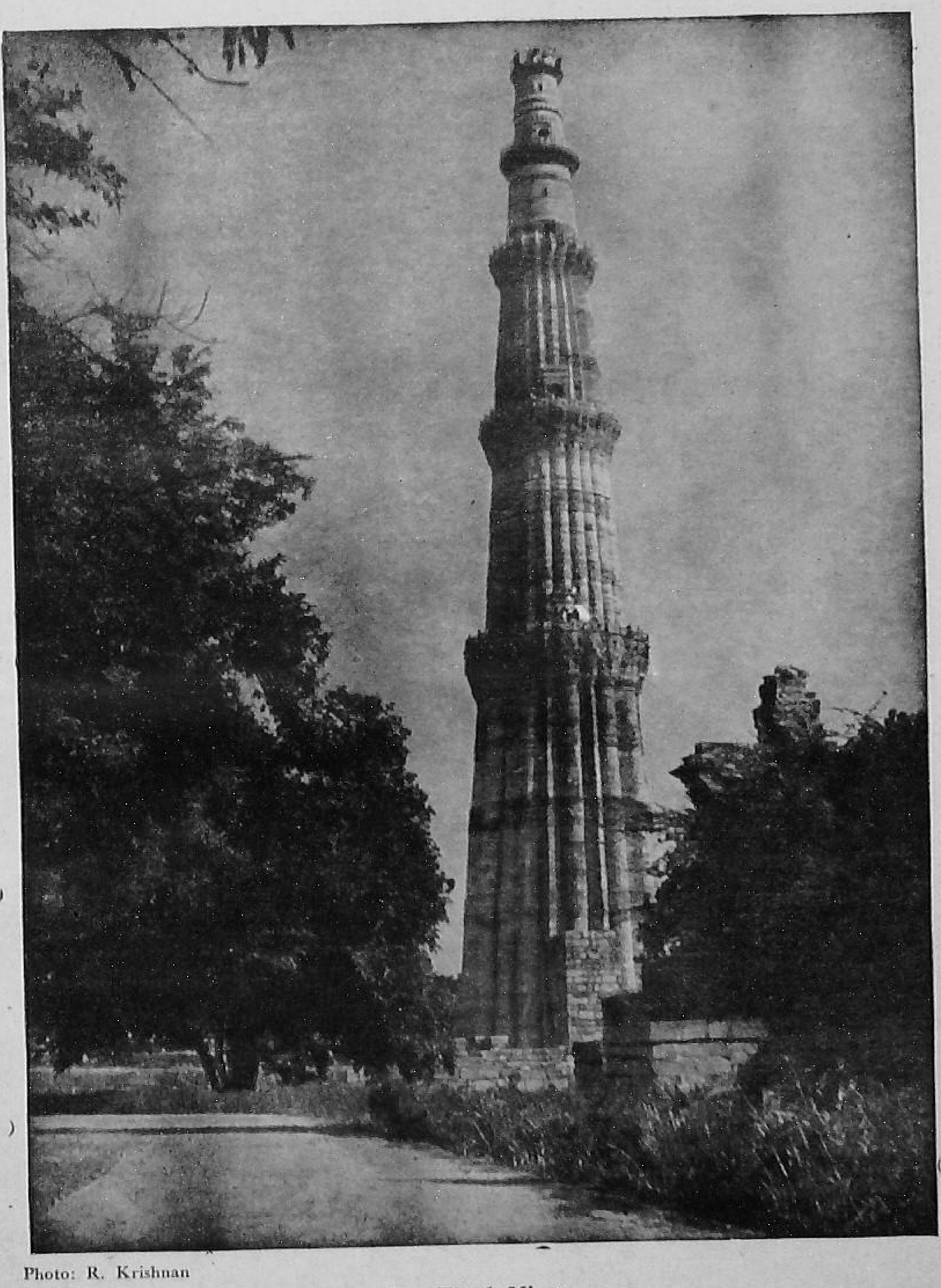
The mental faculties—reasoning, memory, judgment, will-power, imagination—cease to function with the destruction of the human body, as do also other body activities, such as the heart-beat, digestion, circulation of the blood, and breathing, when a man dies. "His breath goeth forth, he returneth to his earth; *in that very day his thoughts perish.*" Psalm 146:4.

"The living know that they shall die: but *the dead know not anything,* neither have they any more a reward; for the memory of them is forgotten. Also their love, and their hatred, and their envy, is now perished; neither have they any more a portion forever in anything that is done under the sun." Ecclesiastes 9:5, 6.

Therefore the admonition is given: "Whatsoever thy hand findeth to do, do it with thy might; for there is no work, nor device, nor knowledge, nor wisdom, in the grave, whither thou goest." Ecclesiastes 9:10. "The dead praise not the Lord, neither any that go down into silence." Psalm 115:17. (See also Isaiah 38:18, 19.)

Job said of the dead: "Till the heavens be no more, they shall not awake, nor be raised out of their sleep." Job 14:12. Here death is spoken of as a sleep. Death is repeatedly compared by Bible writers to a sleep. The obituaries of the Holy Scriptures frequently speak of a man as having "slept with his fathers." To God the death of men is like a sleep because He has the power to wake them from it and raise them up from their dusty beds to life.

A notable example of this is recorded in the Gospel story of the life of Christ. Lazarus was gravely ill. His sisters, Mary and Martha, sent word to Jesus to come at once, but the Master delayed His coming. Afterward Christ said to His disciples: "Our friend Lazarus sleepeth; but I go, that I may awake him out of



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sleep. Then said His disciples, Lord, if he sleep, he shall do well. Howbeit Jesus spake of his death: but they thought that He had spoken of taking of rest in sleep. Then said Jesus unto them plainly, Lazarus is dead." John 11:11-14.

"Then when Jesus came, He found that he had lain *in the grave* four days already." John 11:17. Lazarus was not in a hell of fire, neither in a purgatory of fire, nor in a celestial paradise during those four days. He was in the grave, and his body was in a state of decomposition. (John 11:39.) Jesus ordered that the stone be removed from the cave, and when this was done, "He cried with a loud voice, Lazarus, come forth. And he that was dead came forth, bound hand and foot with graveclothes: and his face was bound about with a napkin. Jesus saith unto them, Loose him, and let him go." John 11:43, 44.

The Lord did not call to Lazarus and tell him to come up out of a burning hell or purgatory and enter into the decomposing body in the grave, in order to be raised from the dead. Neither did He tell him to descend from heaven and enter into the corpse, to be raised up from the grave. Lazarus was dead and in the grave, and from the tomb the Lord called him back to life.

When Job was about to die, he said: "Now shall I sleep in the dust; and thou shalt seek me in the morning, but *I shall not be.*" Job 7:21. His only hope of living again, of escaping from the bonds of the grave, was the resurrection from the dead. "If a man die, shall he live again? all the days of my appointed time will I wait, till my change come. Thou shalt call, and I will answer Thee: Thou wilt have a desire to the work of Thine hands." Job 14:14, 15. Where would he wait until the Lord should call him? He says: "If I wait, the grave is mine house." Job 17:13.

Jesus teaches the same thing, saying: "The hour is coming, in the which all that are in the graves shall hear His voice, and shall come forth; they that have done good, unto the resurrection of life; and they that have done evil, unto the resurrection of damnation." John 5:28, 29. Note that Christ speaks of the dead as being "in the graves," and that from them they are to "come forth" in the resurrection day.

Man's only hope of escape from the grave is the resurrection of the dead promised by the Lord Jesus Christ. "The Lord Himself shall descend from heaven with a shout, with the voice of the Archangel, and with the trump of God: and the dead in Christ shall rise first: then we which are alive and remain shall be caught up together with them in the clouds, to meet the Lord in the air: and so shall we ever be with the Lord." 1 Thessalonians 4:16, 17. "So shall we ever be with the Lord," and in no other way.

The prophet Ezekiel saw in vision the resurrection of the millions of dead who are buried in the earth. The surface of the earth appeared to him as a great valley full of dry bones, which, at the Lord's word, came together, each bone to its corresponding bone. Then sinews and flesh and skin came upon the bones, but there was no life in those re-made bodies. (Ezekiel 37:1-10.) Thereupon "breath came into them, and they lived, and stood up upon their feet, an exceeding great army." Ezekiel 37:10. The promise given in connection with the vision was this: "O My people, I will open your graves, and cause you to come up out of your graves." Ezekiel 37;12.

Thus it is clearly seen that *creation* is the making of man; *death* is the unmaking of man; and *resurrection* is the re-making of man. In the creation the dust of the earth and the breath of life are united. In death the dust of the earth, and breath of life are separated. In the resurrection the dust of the earth and the breath of life are reunited.

Not all the redeemed will sleep in the grave. There will be some alive upon the earth at the moment of the Lord's second advent, and they will be translated to heaven without seeing death. (1 Thessalonians 4:16, 17.) But all redeemed—both those raised from the dead and those translated—will experience a bodily change by having the state of incorruption and immortality conferred upon them. That is what Paul meant when he said: "We shall not all sleep, but *we shall all be changed.*" 1 Corinthians 15:51. That is the experience to which Job referred when he said: "All the days of my appointed time will I wait, till my change come." Job 14:14.

The resurrection is the hope of the sleeping saints of all ages. David sang with joy about this blessed hope, saying: "As for me, I will behold Thy face in righteousness: I shall be satisfied, when I awake, with Thy likeness." Psalm 17:15. The royal poet and singer lies waiting in his tomb for that resurrection day to come, "for David is not ascended into the heavens." Acts 2:34. (See also verse 29.)

Concerning the man who believes in Him, Christ says: "I will raise him up at the last day." John 6:40. Blessed is the man who shall have part in the resurrection of life. "Beloved, now are we the sons of God, and it doth not yet appear what we shall be: but we know that, when He shall appear, we shall be like Him; for we shall see Him as He is. And every man that hath this hope in Him purifieth himself, even as He is pure." 1 John 3:2, 3.

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God has promised His people a land of plenty.

# *God's Land of Promise*

THE French psychotherapeutist Emile Coue taught his patients to say,

"Every day, in every way,
I am becoming better and better."

This philosophy visioned a gradual upward trend which eventually would lead to Utopia. In the other extreme, today we are told that we are in danger of utter destruction from the atomic bomb. Master minds of science and top-flight military strategists picture cities and nations devastated and depopulated by lethal bombs that will turn the entire globe into a shambles and leave but a few hapless survivors.

Coue was wrong. The destruction brought about by the scientific minds of today will be such as was never before seen on the earth. The devastation will be that foretold by the prophets, and will be a sign of the ultimate future destruction. But to the Christian, God is still at the helm of human affairs, and "the impregnable rock of Holy Scripture" is the Christian's inerrant guide. He who formed the earth created it not in vain.

In the Bible are approximately one thousand prophecies, the majority of which have been accurately fulfilled. Others are crystallizing into history. Not one failure can be cited; and in this great Book, God's eternal purpose is clearly revealed.

The first two chapters of the Bible describe the Eden that was lost; the last two foretell the Paradise to be restored. The third chapter of Inspiration narrates the entrance of sin; while the third from the close foretells the final exit of sin and evil. This volume takes man from the barred entrance of the lost estate, and leaves him before the open gate of the New Jerusalem, where the Spirit extends the welcome to "whosoever will."

Yes, God's Word declares that "this present evil world" is soon to be completely renovated, and that a "new

earth" with its new citizens and civilization is about to be established. That land, we are assured, is to be just as pure and beautiful and real as the Eden home of our first parents. (2 Peter 3:13.) The Bible also states that "the righteous shall be recompensed in the earth." Proverbs 11:31. While from the lips of the Master came the promise, "Blessed are the meek: for they shall inherit the earth." Matthew 5:5. Wonderful to contemplate! This old earth, so marred by sin, is to become the Paradise home of the redeemed.

It will not be a realm of idleness but one of activity, with useful labour for tireless hands, and enjoyable tasks for flawless artisans. Vineyards and orchards are to be planted and cultivated; houses will be built; beautiful parks and woodlands will adorn the countryside; vast enterprises will be carried forward, and the loftiest aspirations attained. (Isaiah 65:17, 21, 22.)

The prophet Isaiah presents a vivid pen picture of the new earth: "The wilderness and the solitary place shall be glad for them; and the desert shall rejoice, and blossom as the rose. It shall blossom abundantly, and rejoice even with joy and singing: the glory of Lebanon shall be given unto it, the excellency of Carmel and Sharon, they shall see the glory of the Lord, and the excellency of our God." Isaiah 35:1, 2.

The animals of field and forest will be there, but their natures will be entirely transformed: "No lion shall be there, nor any ravenous beast" (verse 9) requiring bars and cages; but with changed instincts "the wolf also shall dwell with the lamb, and the leopard shall lie down with the kid; and the calf and the young lion and the fatling together, . . . and the lion shall eat straw like the ox. . . . They shall not hurt nor destroy in all my holy mountain." Isaiah 11:6-9. Likewise the citizens of that transformed country "shall dwell safely in the wilderness, and sleep in the woods." Ezekiel 34:25.

On this present earth we are afflicted with aches and infirmities, with losses and crosses. But in that day the fondest dreams will be more than realized; the anguish and disquietude will all be past; for "the inhabitant shall not say, I am sick." Isaiah 33:24. "Then the eyes of the blind shall be opened, and the ears of the deaf shall be unstopped. Then shall the lame man leap as an hart, and the tongue of the dumb sing." Isaiah 35:5, 6.

Shall we recognize our friends in that glad tomorrow? Certainly, for the identity of each will be preserved. "Now we see through a glass, darkly; but then face to face: now I know in part; but then shall I know even as also I am known." 1 Corinthians 13:12. "Beloved, now are we the sons of God, and it doth

Photo by Govind Lal

Tomb of Aurangzeb's wife at Aurangabad.

not yet appear what we shall be; but we know that, when He shall appear, we shall be like Him; for we shall see Him as He is." 1 John 3:2.

"Oh, how sweet it will be in that
beautiful land,
So free from all sorrow and pain;
With songs on our lips and with
harps in our hands,
To meet one another again!"

The capital of that country will be a city of architectural wonders and "far distances." (Isaiah 33:17, margin.) "And I John saw the holy city, new Jerusalem, coming down from God out of heaven, prepared as a bride adorned for her husband. And I heard a great voice out of heaven saying, Behold, the tabernacle of God is with men, and He will dwell with them, and they shall be His people, and God Himself shall be with them, and be their God." Revelation 21:2, 3.

With vivid imagination, picture that city foursquare, three hundred and seventy-five miles on each side. Consider the enclosing jasper walls "great and high," fifteen hundred miles in circum-

ference, their twelve foundations "garnished with all manner of precious stones," the colour scheme of which is declared to be more intricate and beauteous than that of the rainbow. View the twelve massive, pearly gates, three on a side, each gate composed of "one pearl." Revelation 21:12-21.

What delight to walk along those majestic avenues which are paved with "pure gold, as it were transparent glass"! Residents of that metropolis will require no light of candle, torch, electric arc, or radium glow; "for the glory of God did lighten it, and the Lamb is the light thereof." Revelation 21:21, 22. Without the city, however, to gladden the vast areas of the re-created new earth, both sun and moon will shine with increased splendour. (Revelation 21:23; Isaiah 30:26.)

Describing the palace grounds, the Seer of Patmos wrote: "And He showed me a pure river of water of life, clear as crystal, proceeding out of the throne of God and of the Lamb. In the midst of the street of it, and on either side of the river, was there the tree of life, which bare twelve manner of fruits, and yielded her fruit every month: and the leaves of the tree were for the healing of the nations." Revelation 22:1, 2.

Like a mighty banyan tree with trunks on "either side of the river," the tree of life from the long-lost Paradise sends forth its spreading branches to arch the tide, and yields its never-failing harvest of twelve manner of luscious fruits.

In that promised homeland are joys and opportunities beyond our fondest expectations; and the years of eternity will continue to bring new wonders to admire, new themes to comprehend, and new vistas to gladden the senses.

"As it is written, Eye hath not seen, nor ear heard, neither have entered into the heart of man, the things which God hath prepared for them that love Him." 1 Corinthians 2:9.

Here we may revel in the majesty of the mountains, the grandeur of the sea, the magnificence of palace and cathedral; yet in this world *"eye hath not seen"* anything to compare with the new earth. We may be thrilled by the exquisite productions of master artists, by the enrapturing harmonies of musical instruments, or by the sweet symphonies of the human voice; yet here *"ear hath not heard"* the delights God has prepared. We may dream of the holy city, of its golden streets, its walls of jasper, its gates of pearl, its crystalline river, its sea of glass; but the heart of man has never penetrated to the wondrous realities of that future home.

The citizenship requirements for entrance into the city of God are explicitly given: "And there shall in no wise enter into it anything that defileth, neither

whatsoever worketh abomination, or maketh a lie: but they which are written in the Lamb's book of life." Revelation 21:27. "Blessed are they that do His commandments, that they may have right to the tree of life, and may enter in through the gates into the city." Revelation 22:14.

Eternal life depends upon our personal acquaintance with Jesus Christ (John 17:2). To know Him we must diligently study His character as revealed in the Book of books (John 5:39). We must talk with Him frequently through prayer (1 Thessalonians 5:17). And in that land where dreams come true, we shall meet the Man of Calvary.

There are sorrows in this life but there they will be healed and forgotten, its disappointments understood, and its perplexities made plain. We shall then more clearly understand the ministry of trial, and sense in a larger measure the surpassing love that inspired Jesus Christ to make the infinite sacrifice upon Calvary. We shall see and associate with our Redeemer, and listen with rapt attention as the great Teacher unfolds the romance of creation, the mysteries of the physical world, and the science of redemption that has restored man to sonship with God.

The twentieth century, replete with fulfilled prophecy, emphasizes the astounding fact that the hour has almost struck for the long anticipated homegoing.

Ere long the edict will go forth from Him who sits upon the throne of the universe: "Behold, I make all things new"; and in preparation for the *new* earth, the New Jerusalem, and its new civilization, Jesus Christ is now preparing His new humanity.

In that land of perennial health and beauty, friends and loved ones long separated by death will meet in happy reunion. The bloom of eternal youth will be on every cheek. Every limb will be lithe and strong, and there will be no anxiety or fear that death-dealing bombs or sudden misfortunes will terminate the joyous companionship and the marvellous delights of travel, study, and research.

"The entire universe is clean. One pulse of harmony and gladness beats through the vast creation. From Him who created all, flow life and light and gladness, throughout the realms of illimitable space. From the minutest atom to the greatest world, all things, animate and inanimate, in their unshadowed beauty and perfect joy, declare that God is love."